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DEPARTMENT OF THE AIR FORCE JUSTIFICATION OF ESTIMATES FOR FISC--ETC (11)

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DEPARTMENT OF THE AIR FORCE

JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1983
SUBMITTED TO CONGRESS FEBRUARY 1982



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Research, Development, Test, & Evaluation, Air Force

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Research, Development, Test & Evaluation Justifications Budget Justifications		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This document provides justification on the United States Air Force Research, Development, Test & Evaluation (RDT&E) Program Estimates. Submitted to Congressional Committees during FY 83 hearings.		

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, as authorized \$11,220,400 by law: (\$8,659,610) to remain available for obligation until September 30, (1983). 1984

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Appendix

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Research, Development, Test, and Evaluation, Air Force

06 FEB 82

Program and Financing (in thousands of dollars)

Identification code	57-3600-0-1-051	Budget plan (amounts for RDT&E actions programmed)			Obligations		
		1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.
Program by activities:							
Direct:							
1.	Technology base	613,987	620,732	706,705	617,324	592,416	706,160
2.	Advanced technology development	284,034	372,610	472,098	276,361	364,809	462,475
3.	Strategic programs	2,730,762	3,513,448	4,973,010	2,507,637	3,694,725	4,860,364
4.	Tactical programs	1,453,702	1,777,724	2,218,002	1,261,076	1,962,725	2,202,337
5.	Intelligence and communications	864,978	1,305,352	1,418,213	943,350	1,277,669	1,342,722
6.	Defensewide mission support	1,065,864	1,229,444	1,432,369	1,065,223	1,105,026	1,465,407
	Total direct	7,133,347	8,819,310	11,220,400	6,710,971	8,997,372	11,079,485
	Reimbursable program	656,197	668,000	734,000	695,902	658,678	727,000
10.0001	Total	7,789,544	9,487,310	11,954,400	7,406,873	9,656,050	11,806,485
Financing:							
Offsetting collections from:							
11.0001	Federal funds	-612,536	-626,000	-690,000	-560,937	-626,000	-690,000
13.0001	Trust funds	-26,527	-25,000	-25,000	-27,809	-25,000	-25,000
14.0001	Non-federal sources	-17,134	-17,000	-19,000	-17,000	-17,000	-19,000
17.0001	Recoveries of prior year obligations(-)				-24,424		
	Unobligated balance available, start of year:						
21.4001	For completion of prior year budget plans				-327,191	-738,279	-569,239
21.4002	Reprogramming from or to prior year budget plan	-65,556					
23.4001	Unobligated balance transferred to other accounts	39,600			39,600		
24.4001	Unobligated balance available, end of year				738,279	569,239	717,154
25.0001	Unobligated balance lapsing	25,956	14,400		25,956	14,400	
39.0001	Budget authority	7,133,347	8,833,710	11,220,400	7,133,347	8,833,710	11,220,400
Budget authority:							
40.0001	Appropriation	7,082,987	8,659,610	11,220,400	7,082,987	8,659,610	11,220,400
41.0001	Transferred to other accounts(-)	-10,000	-5,000		-10,000	-5,000	
42.0001	Transferred from other accounts	17,200	179,100		17,200	179,100	
43.0001	Appropriation (adjusted)	7,090,187	8,833,710	11,220,400	7,090,187	8,833,710	11,220,400
50.0001	Reappropriation	43,160			43,160		
Relation of obligations to outlays:							
71.0001	Obligations incurred, net				6,661,127	8,968,350	11,072,485
72.4001	Obligated balance, start of year				1,857,399	2,199,175	3,250,225
74.4001	Obligated balance, end of year				-2,196,175	-3,250,225	-4,144,710
77.0001	Adjustments in expired accounts				22,985		
78.0001	Adjustments in unexpired accounts				-24,424		
90.0001	Outlays				6,340,912	7,934,300	10,178,000

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Research, Development, Test, and Evaluation, Air Force

08 FEB 82

Program and Financing (in thousands of dollars)

1980 Fiscal year program

Identification code	57-3600-0-1-051	Budget plan (amounts for RDT&E actions programmed)			Obligations		
		1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.
Program by activities:							
Direct:							
1.	Technology base				13,731		
2.	Advanced technology development				6,521		
3.	Strategic programs				66,161		
4.	Tactical programs				100,423		
5.	Intelligence and communications				6,246		
6.	Defensewide mission support				39,643		
	Total direct				252,925		
	Reimbursable program				2,683		
10.0001	Total				255,608		
Financing:							
Offsetting collections from:							
11.0001	Adjustment to prior year federal fund order				31,599		
13.0001	Adjustment to prior year trust fund orders				-1,282		
14.0001	Adjustment to non-federal sources				134		
17.0001	Recoveries of prior year obligations(-)				-24,424		
Unobligated balance available, start of year:							
21.4001	For completion of prior year budget plans				-327,191		
21.4002	Reprogramming from or to prior year budget plan	-65,556					
23.4001	Unobligated balance transferred to other accounts	39,600			39,600		
25.0001	Unobligated balance lapsing	25,956			25,956		
40.0001	Budget authority						

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Research, Development, Test, and Evaluation, Air Force

08 FEB 82

Program and Financing (in thousands of dollars)

1981 Fiscal year program

Identification code 57-3800-0-1-051		Budget plan (amounts for RDT&E actions programmed)			Obligations		
		1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.
Program by activities:							
Direct:							
1.	Technology base	613,987			603,593	10,384	
2.	Advanced technology development	284,034			269,840	14,194	
3.	Strategic programs	2,730,762			2,421,476	309,286	
4.	Tactical programs	1,453,702			1,180,653	273,049	
5.	Intelligence and communications	984,978			937,104	47,874	
6.	Defensewide mission support	1,065,684			1,045,380	20,304	
	Total direct	7,133,347			6,458,046	675,301	
	Reimbursable program	656,197			593,219	62,978	
10.0001	Total	7,789,544			7,051,265	738,279	
Financing:							
Offsetting collections from:							
11.0001	Federal funds	-612,538			-612,536		
13.0001	Trust funds	-26,527			-26,527		
14.0001	Non-federal sources	-17,134			-17,134		
21.4001	Unobligated balance available, start of year					-738,279	
24.4001	Unobligated balance available, end of year				738,279		
39.0001	Budget authority	7,133,347			7,133,347		
Budget authority:							
40.0001	Appropriation	7,082,987			7,082,987		
41.0001	Transferred to other accounts(-)	-10,000			-10,000		
42.0001	Transferred from other accounts	17,200			17,200		
43.0001	Appropriation (adjusted)	7,090,187			7,090,187		
50.0001	Reappropriation	43,160			43,160		

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Research, Development, Test, and Evaluation, Air Force

08 FEB 82

Program and Financing (in thousands of dollars)

1982 Fiscal year program

Identification code	57-3600-0-1-051	Budget plan (amounts for RDT&E actions programmed)			Obligations		
		1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.
Program by activities:							
Direct:							
1.	Technology base		620,732		582,022	38,710	
2.	Advanced technology development		372,810		350,815	21,995	
3.	Strategic programs		3,513,448		3,385,439	128,009	
4.	Tactical programs		1,777,724		1,689,678	88,046	
5.	Intelligence and communications		1,305,352		1,229,795	75,557	
6.	Defensewide mission support		1,229,444		1,084,524	144,920	
	Total direct		8,819,310		8,322,071	497,239	
	Reimbursable program		668,000		596,000	72,000	
10.0001	Total		9,487,310		8,918,071	569,239	
Financing:							
Offsetting collections from:							
11.0001	Federal funds		-626,000		-626,000		
13.0001	Trust funds		-25,000		-25,000		
14.0001	Non-federal sources		-17,000		-17,000		
21.4001	Unobligated balance available, start of year					-569,239	
24.4001	Unobligated balance available, end of year				569,239		
25.0001	Unobligated balance lapsing		14,400		14,400		
39.0001	Budget authority		8,833,710		8,833,710		
Budget authority:							
40.0001	Appropriation		8,659,610		8,659,610		
41.0001	Transferred to other accounts(-)		-5,000		-5,000		
42.0001	Transferred from other accounts		179,100		179,100		
43.0001	Appropriation (adjusted)		8,833,710		8,833,710		

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Research, Development, Test, and Evaluation, Air Force

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Program and Financing (in thousands of dollars)

1963 Fiscal year program

Budget plan (amounts for
RDT&E actions programmed)

Obligations

Identification code 57-3600-0-1-051

1961 actual	1962 est.	1963 est.	1961 actual	1962 est.	1963 est.
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Program by activities:

Direct:

1. Technology base	706,708	687,450
2. Advanced technology development	472,098	440,480
3. Strategic programs	4,973,010	4,752,375
4. Tactical programs	2,218,002	2,114,289
5. Intelligence and communications	1,418,213	1,267,165
6. Defensewide mission support	1,432,369	1,340,487

Total direct

11,220,400

10,582,246

Reimbursable program

734,000

655,000

10.0001 Total

11,954,400

11,237,246

Financing:

Offsetting collections from:

11.0001 Federal funds	-690,000	-690,000
13.0001 Trust funds	-25,000	-25,000
14.0001 Non-federal sources	-19,000	-19,000
24.4001 Unobligated balance available, end of year		717,154
40.0001 Budget authority	11,220,400	11,220,400

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Research, Development, Test, and Evaluation, Air Force

08 FEB 82

Object Classification (in thousands of dollars)

Identification code	57-3600-0-1-051	1981 actual	1982 est.	1983 est.
Direct obligations:				
Personnel compensation:				
111.101	Full-time permanent	467,938	485,130	492,064
111.301	Other than full-time permanent	8,250	8,300	8,300
111.501	Other personnel compensation	8,188	8,533	8,741
111.901	Total personnel compensation	484,376	501,963	509,105
112.101	Civilian personnel	46,807	48,605	49,381
121.001	Travel and transportation of persons	51,302	53,196	55,089
122.001	Transportation of things	4,344	4,648	4,973
123.201	Communications, utilities and other rent	59,408	68,513	79,939
124.001	Printing and reproduction	1,438	1,560	1,670
Other services:				
125.002	Purchases from industrial funds	28,105	33,147	35,861
125.003	Contracts	5,924,150	6,166,547	10,216,358
126.001	Supplies and materials	74,711	79,941	85,537
131.001	Equipment	36,310	38,852	41,572
199.001	Total direct obligations	6,710,971	8,997,372	11,079,465
Reimbursable obligations:				
Personnel compensation:				
211.101	Full-time permanent	10,680	12,510	14,660
211.501	Other personnel compensation	240	260	280
211.901	Total personnel compensation	10,920	12,770	14,940
212.101	Civilian personnel	1,080	1,230	1,360
221.001	Travel and transportation of persons	5,700	5,910	6,121
222.001	Transportation of things	593	635	679
223.201	Communications, utilities and other rent	10,626	12,326	14,298
224.001	Printing and reproduction	88	94	101
Other services:				
225.002	Purchases from industrial funds	1,200	1,600	1,600
225.003	Contracts	530,986	527,275	648,163
226.001	Supplies and materials	28,821	30,838	32,997
231.001	Equipment	5,888	6,300	6,741
299.001	Total reimbursable obligations	595,902	658,978	727,000
999.901	Total obligations	7,306,873	9,656,350	11,806,465

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Research, Development, Test, and Evaluation, Air Force

08 FEB 82

(Supplemental now requested under existing legislation)

Program and Financing (in thousands of dollars)

Identification code	57-3600-1-1-051	Budget plan (amounts for RDT&E actions programmed)			Obligations			
		1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.	
Program by activities:								
Direct:								
10.0001	Total		57,000			53,580	3,420	
Financing:								
21.4001	Unobligated balance available, start of year						-3,420	
24.4001	Unobligated balance available, end of year					3,420		
40.0001	Budget authority (appropriation)		57,000			57,000		
Relation of obligations to outlays:								
71.0001	Obligations incurred, net					53,580	3,420	
72.4001	Obligated balance, start of year						18,580	
74.4001	Obligated balance, end of year					-18,580	-3,000	
90.0001	Outlays					35,000	19,000	

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Research, Development, Test, and Evaluation, Air Force
(Supplemental now requested under existing legislation)

08 FEB 82

Object Classification (in thousands of dollars)

Identification code		57-3600-1-1-051	1981 actual	1982 est.	1983 est.
Other services:					
125.003	Contracts		53,580	3,420
		
999.901	Total obligations		53,580	3,420

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Personnel Summary (\$ In Thousands)

Identification Code 57-3600-9-1-051	1981 Estimate	1982 Estimate	1983 Estimate	1984 Estimate
Total number of full-time permanent positions.....	18,375	18,784	19,054	19,256
Full-time equivalent employment.....	18,817	18,760	19,083	19,403
Full-time equivalent of overtime and holiday hours.....	186	186	186	186
Average ES salary.....	\$50,000	\$54,643	\$56,153	\$56,153
Average GS grade.....	9.50	9.50	9.50	9.50
Average GS salary.....	\$25,979	\$27,343	\$27,413	\$27,413
Average salary of ungraded positions.....	\$21,998	\$23,243	\$23,512	\$23,512

SECTION 2

PROGRAM ELEMENT
LISTING

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PROGRAM ELEMENT LISTING

INTRODUCTION AND EXPLANATION OF CONTENTS

This section provides an overview of the Air Force Research, Development, Test and Evaluation program. The detailed listing is preceded by three summaries; the first by Research Category, the second by Budget Activity and the third by FYDP Programs.

A separate document, Descriptive Summaries, furnishes narrative information on all RDT&E program elements and projects of \$5.0 million or more. The number in the right hand column of this Program Element Listing refers to the appropriate page in the Descriptive Summaries.

The funding information included in this listing corresponds to that contained in The Budget of the United States Government, 1983 Appendix.

Data for FY 1981 and FY 1982 have been adjusted to achieve comparability with the revised program element and project structure for FY 1983. The revised structure contained in the FY 1983 budget request is consistent with the Program Element Listing, dated January 1981, except as noted in Descriptive Summaries.

DEPARTMENT OF THE AIR FORCE
FY 1983 R D T & E PROGRAM

EXHIBIT R-1

SUMMARY

DATE: 08 FEB 1982

THOUSANDS OF DOLLARS

SUMMARY RECAP OF RESEARCH CATEGORIES

	FY 1981	FY 1982	FY 1983	FY 1984
RESEARCH	126,612	147,257	178,982	193,264
EXPLORATORY DEVELOPMENT	487,375	473,475	527,726	553,945
ADVANCED DEVELOPMENT	851,553	901,663	1,137,621	1,568,787
ENGINEERING DEVELOPMENT	3,270,844	4,455,375	5,856,633	5,481,154
MANAGEMENT AND SUPPORT	631,060	668,325	709,534	752,539
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	5,367,444	6,646,095	8,410,496	8,549,689
OPERATIONAL SYSTEMS DEVELOPMENT	1,765,903	2,230,215	2,809,904	2,898,346
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE	7,133,347	8,876,310	11,220,400	11,448,035

SUMMARY RECAP OF BUDGET ACTIVITIES

	FY 1981	FY 1982	FY 1983	FY 1984
TECHNOLOGY BASE	613,987	620,732	706,708	747,209
ADVANCED TECHNOLOGY DEVELOPMENT	284,034	372,610	472,098	531,364
STRATEGIC PROGRAMS	2,730,762	3,570,448	4,973,010	4,993,335
TACTICAL PROGRAMS	1,453,702	1,777,724	2,218,002	2,314,418
INTELLIGENCE AND COMMUNICATIONS	984,978	1,305,352	1,418,213	1,334,519
DEFENSEWIDE MISSION SUPPORT	1,065,884	1,229,444	1,432,369	1,527,190
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE	7,133,347	8,876,310	11,220,400	11,448,035

SUMMARY RECAP OF FYDP PROGRAMS

	FY 1981	FY 1982	FY 1983	FY 1984
STRATEGIC FORCES	396,920	428,390	525,525	428,945
GENERAL PURPOSE FORCES	300,261	323,019	610,756	681,522
INTELLIGENCE AND COMMUNICATIONS	1,029,131	1,434,773	1,644,493	1,760,457
AIRLIFT/SEALIFT	26,935	30,485	12,604	7,310
RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6)	5,367,444	6,646,095	8,410,496	8,549,689
CENTRAL SUPPLY AND MAINTENANCE	10,337	10,958	13,738	17,350
SUPPORT OF OTHER NATIONS	2,319	2,590	2,788	2,762
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE	7,133,347	8,876,310	11,220,400	11,448,035

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DEPARTMENT OF THE AIR FORCE
FY 1983 R D T & E PROGRAM

EXHIBIT R-1

APPROPRIATION: 3600 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE: 08 FEB 1982

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. SUM. Page
				FY 1981	FY 1982	FY 1983	FY 1984	
1	61101F	IN-HOUSE LAB INDEPENDENT RESEARCH	1	10,177	11,258	13,124	15,216 U	1
2	61102F	DEFENSE RESEARCH SCIENCES	1	118,435	135,999	165,858	178,048 U	5
3	62101F	GEOPHYSICS	1	31,259	33,485	37,780	39,195 U	49
4	62102F	MATERIALS	1	38,285	42,158	46,174	49,866 U	63
5	62201F	AEROSPACE FLIGHT DYNAMICS	1	55,688	55,155	61,219	65,184 U	70
6	62202F	AEROSPACE BIOTECHNOLOGY	1	34,740	35,955	41,718	44,777 U	87
7	62203F	AEROSPACE PROPULSION	1	51,173	53,918	58,645	60,547 U	95
8	62204F	AEROSPACE AVIONICS/VHSI CIRCUITS	1	57,730	61,523	67,652	71,500 U	108
9	62205F	TRAINING/SIMULATION TECH	1	12,942	13,964	18,545	18,271 U	124
10	62302F	ROCKET PROPULSION	1	30,791	34,105	37,072	38,284 U	134
11	62601F	ADVANCED WEAPONS	1	35,193	39,208	44,471	44,691 U	142
12	62602F	CONVENTIONAL MUNITIONS	1	30,740	32,724	37,418	38,366 U	154
13	62702F	COMMAND/CONTROL/COMMUNICATION	1	61,996	65,887	69,840	75,363 U	171
14	62703F	PERS UTILIZATION TECH	1	5,299	5,391	7,194	7,921 U	197
15	62704F	VERY HIGH SPEED INTEGRATED CIRCUITS	1	41,541				U
		TECHNOLOGY BASE		613,987	620,732	705,703	747,208	
16	63103F	ADVANCED AIRBORNE RADAR DEVELOPMENT	2			3,475	15,330 U	203
17	63202F	ACFT PROPULSION SUBSYS INTEGRATION	2	18,418	23,013	21,468	27,875 U	206
18	63203F	ADV AVIONICS FOR ACFT	2	10,809	14,944	18,201	22,556 U	212
19	63205F	FLT VEHICLE TECHNOLOGY	2	7,874	8,675	7,301	9,979 U	218
20	63208F	RECON SENSORS/PROCESSING TECHNOLOGY	2	5,866	4,085	6,383	8,984 U	223

DEPARTMENT OF THE AIR FORCE
FY 1983 R D T & E PROGRAM

EXHIBIT R-1

APPROPRIATION: 3600 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE: 08 FEB 1982

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				S E C	DES. SUM. Page
				FY 1981	FY 1982	FY 1983	FY 1984		
21	63211F	AEROSPACE STRUCTURES/MATERIALS	2	15,535	19,427	23,545	25,610	U	226
22	63215F	AVIATION TURBINE FUEL TECHNOLOGY	2	8,437	6,486	8,699	8,465	U	236
23	63216F	ADV TURBINE ENGINE GAS GENERATOR	2	30,940	33,278	30,979	33,128	U	239
24	83226F	DOD COMMON PROG LANGUAGE(ADA)ADV DEV	2		6,974	6,930	5,748	U	243
25	63227F	ADVANCED SIMULATOR TECHNOLOGY	2	3,183	2,192	10,739	6,941	U	246
26	63231F	CREW SYSTEMS TECHNOLOGY	2			4,055	3,805	U	253
27	63245F	ADV FIGHTER TECH INTEGRATION	2	10,353	11,855	10,967	14,570	U	256
28	63246F	AIRCRAFT SUBSYSTEMS TECH	2	5,235				U	
29	63247F	MODULAR AUTOMATIC TEST EG	2	12,650				U	
30	63250F	LINCOLN LABORATORY	2	22,452	22,117	23,079	25,888	U	264
31	63253F	ADVANCED SYSTEM INTEGRATION DEMO	2		6,774	16,421	34,586	U	267
32	63259F	CARTOG APPLICATIONS-TAC & STRAT SYS	2			890	2,345	U	273
33	63302F	ADV MSLE PROPULSION	2	6,477	7,174	894	1,279	U	276
34	63383F	HYPERVELOCITY MISSILE	2		8,070	982		U	280
35	63410F	SPACE SYS ENVIRON INTERACTIONS TECH	2			1,583	2,637	U	282
36	63452F	VERY HIGH SPEED INTEGRATED CIRCUITS	2		65,547	66,004	61,479	U	285
37	63601F	CONVENTIONAL WEAPONS	2	21,152	22,220	20,017	17,830	U	290
38	63603F	SPACE LASER PROGRAM	2			40,581	37,104	U	301
39	63605F	ADVANCED RADIATION TECH	2	58,237	75,516	95,120	92,400	U	308
40	63706F	HEARTLINE DEMONSTRATION PROG	2	2,058				U	
41	63723F	CIVIL/ENVIRONMENTAL ENGR TECH	2	3,839	3,885	4,502	5,163	U	313

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				FY 1981	FY 1982	FY 1983	FY 1984	
42	63728F	ADVANCED COMPUTER TECHNOLOGY	2	4,438	4,762	4,957	6,616 U	317
43	63739F	ADV DRONE/REMOTELY PILOTED VEH DEV	2	4,722	2,789		U	
44	63743F	ELECTRO-OPTICAL WARFARE	2	10,857	10,261	16,927	22,638 U	321
45	63750F	COUNTER/COUNTERMEASURES -ADV DEV	2	5,948	1,893	7,041	11,425 U	328
46	63751F	INNOVATIONS IN EDUCATION/TRAINING	2	1,678	2,491	3,073	6,308 U	333
47	63789F	COMD/CNTRL/COMM ADV DEV	2	11,100	10,162	18,295	21,288 U	338
		ADVANCED TECHNOLOGY DEVELOPMENT		284,034	372,610	472,096	531,364	
48	63258F	COMMON STRATEGIC ROTARY LAUNCHER	3		22,400	64,078	63,176 U	343
49	63311F	ADVANCED STRATEGIC MISSILE SYSTEMS	3	96,531	99,624	49,737	61,841 U	345
50	63312F	ADVANCED CONCEPTS	3			60,000	300,000 U	
51	63318F	COUNTER SUAWACS TECHNOLOGY PROG	3	7,451			U	
52	63319F	ADVANCED TECHNOLOGY CRUISE MISSILE	3	15,488	34,887	26,782	20,537 U	349
53	63424F	MSL SURVEILLANCE TECH	3	10,058	13,848	9,745	7,874 U	352
54	63425F	ADVANCED WARNING SYSTEMS	3		9,962	20,808	48,738 U	356
55	63426F	POST-ATTACK RECONNAISSANCE	3			9,919	24,449 U	359
56	63428F	SPACE SURVEILLANCE TECHNOLOGY	3	25,565	23,711	40,285	46,609 U	361
57	63429F	WARNING INFORMATION CORRELATION	3					
58	63438F	SATELLITE SYS SURVIVABILITY	3	24,048			U	
59	63439F	ADV SPACE APPLICATIONS PROGRAM	3	2,647			U	
60	63703F	CONUS OVER-THE-HORIZON RADAR	3	15,920	4,284		U	

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				FY 1981	FY 1982	FY 1983	FY 1984	
61	63735F	WWMCCS ARCHITECTURE	3			18,110	14,413 U	371
62	64226F	B-1B	3	260,124	471,000	753,500	717,900 U	376
63	64233F	TANKER TRANSPORT BOMBER TRNG SYS	3			560	1,557 U	386
64	64312F	M-X	3	1,491,626	1,963,157	2,759,332	2,651,476 U	392
65	64361F	AIR LAUNCHED CRUISE MISSILE	3	106,925	103,741	186,838	83,030 U	402
66	64406F	SPACE DEFENSE SYS	3	133,873	200,800	211,764	179,038 U	412
67	64711F	SYSTEMS SURVIVABILITY (NUC AFFECTS)	3	12,149	12,055	13,946	17,361 U	427
68	64758F	COMPANION TRAINER AIRCRAFT DEV	3	4,473			U	
69	11113F	B-52 SQUADRONS	3	121,659	95,639	121,767	82,105 U	434
70	11118F	SHORT RANGE ATTACK (AGM-69)	3				4,890 U	
71	11142F	KC-135 SQUADRONS	3	20,145	31,780	28,950	11,792 U	474
72	11212F	TITAN SQUADRONS	3	884			U	
73	11213F	MINUTEMAN SQUADRONS	3	53,121	19,626	12,857	5,173 U	480
74	11312F	POST ATTACK COMD/CNTRL SYS	3	9,797	9,365	24,034	34,366 U	489
75	11316F	SAC COMMUNICATIONS	3	24,937	29,489	28,096	188 U	504
76	12310F	WWMCCS ADP-NORAD/ADCOM	3		2,391	6,232	9,958 U	510
77	12311F	NORAD CDC	3	15,954	23,511	25,376	35,097 U	513
78	12313F	BALLISTIC MSL TAC WNG/ATK ASSES SYS	3			1,283	1,658 U	517
79	12325F	JOINT SURVEILLANCE SYSTEM	3	9,861	1,295	1,187	U	519
80	12411F	SURVEILL RADAR STATIONS/SITES	3	6,289	4,264	1,147	1,123 U	522
81	12412F	DEW RADAR STATIONS	3			7,995	36,468 U	525

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82	12417F	CONUS OVER-THE-HORIZON RADAR	3		17,235	79,175	103,991 U	529
83	12423F	BALLISTIC MSL EARLY WNG SYSTEM	3	8,630	12,752	10,262	9,676 U	533
84	12424F	SPACETRACK	3	6,658	7,970	5,542	5,148 U	536
85	12431F	DEFENSE SUPPORT PROGRAM	3	87,570	145,750	120,447	50,275 U	540
86	12432F	SLBM RADAR WARNING SYSTEMS	3		3,788	2,570	4,295 U	551
87	12433F	INTEG OPERATIONAL NUDETS DETECT SYS	3	4,000	6,974	19,885	9,470 U	554
88	12450F	SPACE DEFENSE OPS	3	14,433	1,096	6,470	2,902 U	558
89	33131F	MINIMUM ESSENTIAL EMER COMM NETWORK	3	14,780	45,429	49,606	39,993 U	561
90	33152F	WWMCCS INFORMATION SYSTEM	3			8,366	7,287 U	568
91	33601F	AIR FORCE SAT COMM SYS	3	25,901	80,114	50,901	28,945 U	571
92	33603F	MIL STRATEGIC TACTICAL + RELAY SYS	3			79,784	256,990 U	580
93	35168F	SATELLITE DATA SYSTEM	3	43,104	28,393	7,886	2,614 U	583
94	35892F	SPECIAL ANALYSIS ACTYS	3					
		STRATEGIC PROGRAMS		2,730,762	3,670,448	4,973,010	4,993,335	
95	63228F	NEXT GENERATION TRAINER ACFT	4		14,845	52,365	97,860 U	588
96	63230F	ADVANCED TACTICAL FIGHTER	4			27,338	49,577 U	595
97	63234F	ENFORCER	4	7,787	6,000		U	
98	63238F	ADV TACTICAL AIR RECONNAISSANCE SYS	4			4,008	5,710 U	603
99	63244F	ACFT NON-NUCLEAR SURVIVABILITY	4	1,683	1,594	2,011	2,067 U	606
100	63249F	NIGHT ATTACK PROGRAM	4	57,209	3,068	4,491	3,912 U	610
101	63257F	ADVANCED CIVIL-MILITARY ACFT	4				972 U	

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				FY 1981	FY 1982	FY 1983	FY 1984	
102	63313F	ADV MSL SUBSYSTEMS DEMONSTRATION	4	3,293	5,676			U 614
103	63370F	ADV MED RANGE A-A MSL	4	22,884	1,296			U
104	63609F	ADV ATTACK WEAPONS	4	34,000	55,192	17,999		U 617
105	63616F	ADVANCED ASSAULT BREAKER DEV	4	5,483				U
106	63714F	DOD PHYSICAL SECURITY EQ-EXTERIOR	4	7,308	996	3,911	3,838	U 621
107	63718F	ELECTRONIC WARFARE TECHNOLOGY	4	14,078	11,756	18,724	21,087	U 624
108	63726F	FIBER OPTICS DEVELOPMENT	4			2,864	1,680	U 633
109	63727F	ADVANCED COMMUNICATIONS TECHNOLOGY	4	2,087	5,280	6,106	5,243	U 637
110	63742F	COMBAT IDENTIFICATION TECHNOLOGY	4	2,750	14,744	17,486	19,664	U 642
111	63745F	CHEMICAL WARFARE DEFENSE	4		3,985	4,877	4,887	U 652
112	63748F	SIDE LOOKING AIRBORNE RADAR	4	22,331				U
113	63747F	PAVE MOVER	4	15,060	5,180	2,003	4,202	U 655
114	63801F	SPECIAL PROGRAMS	4					
115	64201F	ACFT AVIONICS EQUIPMENT DEVELOPMENT	4	23,910	13,051	21,237	26,563	U 660
116	64212F	AIRCRAFT EQUIPMENT DEV	4	4,056	2,192	1,864	17,814	U 665
117	64218F	ENGINE MODEL DERIVATIVE PROG	4	73,654	38,510	10,254	20,511	U 669
118	64219F	INTEGRATED DIGITAL AVIONICS	4		2,092			U
119	64220F	EW COUNTER RESPONSE	4		9,165	27,335	22,217	U 673
120	64222F	NUCLEAR WEAPONS SUPPORT	4	2,240	1,694	2,298	2,059	U 688
121	64223F	ALTERNATE FIGHTER ENGINE	4		34,869	94,125	83,125	U
122	64231F	C-X PROGRAM	4	33,420				U

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				FY 1981	FY 1982	FY 1983	FY 1984		
23	64247F	MODULAR AUTOMATIC TEST EQUIPMENT	4		20,224	34,580	17,878	U	694
24	64249F	NIGHT PRECISION ATTACK	4		87,271	103,758	93,799	U	699
25	64268F	ACFT ENGINE COMPONENT IMPROVE PROG	4	105,091	123,889	120,472	156,429	U	704
26	64314F	ADV MED RANGE AIR-TO-AIR MSL	4		138,079	207,601	182,870	U	712
27	64321F	JOINT TACTICAL FUSION PROGRAM	4	5,423	5,280	9,908		U	723
28	64362F	GRD LAUNCHED CRUISE MSL	4	107,618	80,065	28,581	23,950	U	728
29	64601F	C/B DEFENSE EQUIPMENT	4	8,870	8,767	18,339	18,247	U	736
30	64602F	ARMAMENT CRDNANCE DEVELOPMENT	4	20,550	25,205	20,648	21,776	U	740
31	64604F	LOW ALTITUDE AFLD ATTACK SYS	4	25,400				U	
32	64606F	CONVENTIONAL STANDOFF WEAPON	4			38,858	65,708	U	746
33	64607F	WIDE-AREA ANTI-ARMOR MUNITION	4	18,758	20,722	8,503	45,701	U	750
34	64608F	CLOSE AIR SUPPORT WEAPONS SYSTEM	4	46,780	24,906	5,412	570	U	760
35	64610F	AIR DELIVERED LAND MINES	4	4,784				U	
36	64612F	LOW LEVEL LASER GUIDED BOMB	4	6,839	8,269	3,016		U	782
37	64614F	MEDIUM RANGE AIR-TO-SURFACE MISSILE	4	14,000	48,918	42,882	23,045	U	786
38	64616F	AIR-LAUNCHED ASSAULT BREAKER	4		24,009	29,328	76,379	U	793
39	64706F	LIFE SUPPORT SYSTEM	4	9,120	10,959	12,417	20,130	U	806
40	64708F	OTHER OPERATIONAL EQUIPMENT	4	11,448	12,155	18,553	18,257	U	809
41	64710F	RECONNAISSANCE EQUIPMENT	4	14,855	11,357	7,695	23,781	U	817
42	64715F	DCD PHYSICAL SECURITY EQ-EXTERIOR	4	19,738	7,870	18,595	12,120	U	823
43	64724F	TAC C3 COUNTER-MEASURES	4	20,271	10,455	18,976	27,857	U	826

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				FY 1981	FY 1982	FY 1983	FY 1984 C	
144	64725F	COMBAT IDENTIFICATION SYSTEMS	4	4,552	12,155	20,552	28,125 U	835
145	64733F	SURFACE DEF SUPPRESSION	4	8,605	9,564	4,740	U	844
146	64737F	AIRBORNE SELF-PROTECTION JAMMER	4	12,273	54,096	46,726	35,133 U	853
147	64738F	PROTECTIVE SYSTEMS	4	62,767	108,491	110,234	53,148 U	863
148	64739F	TACTICAL PROTECTIVE SYSTEMS	4	25,359	23,711	28,093	28,959 U	879
149	64740F	APPL FOR INFO PROCESSING TECH	4	4,455	4,822	4,993	7,209 U	888
150	64742F	PRECISION LOCATION STRIKE SYSTEM	4	62,760	87,795	98,859	80,379 U	894
151	64746F	EXPENDABLE DRONES	4	5,574	10,468		U	
152	64750F	INTELLIGENCE EQUIPMENT	4	15,807	14,744	18,469	16,894 U	909
153	64751F	INTRA-THEATRE IMAGING SYSTEM	4	2,175	498		U	
154	64753F	COMBAT HELICOPTER MODERNIZATION	4		18,829	32,347	17,977 U	920
155	64754F	JT TAC INFO DIST SYS	4	57,029	68,378	52,513	37,957 U	926
156	64756F	SIDE LOOKING AIRBORNE RADAR (SLAR)	4		29,090	27,192	20,197 U	934
157	64757F	SYSTEMS PROTECTION	4	356			U	
158	64779F	JT INTEROPERABILITY TAC COMD/CNTRL	4	7,557	7,472	3,837	5,752 U	950
159	11133F	SR-71 SQUADRONS	4					
160	27128F	F-4 SQUADRONS	4	4,525	6,276		U	
161	27129F	F-111 SQUADRONS	4	5,288	2,890	39,293	36,571 U	953
162	27130F	F-15 SQUADRONS	4	10,991	32,288	125,318	127,292 U	958
163	27131F	A-10 SQUADRONS	4	34,788	13,947	6,488	4,843 U	975
164	27133F	F-16 SQUADRONS	4	41,857	57,284	86,142	220,202 U	984

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165	27136F	F-4G WILD WEASEL SQUADRONS	4			21,472	16,020 U	1001
166	27161F	TACTICAL AIM MISSILE	4	3,812			U	
167	27162F	TACTICAL AGM MISSILES	4	7,057	4,284	4,790	3,759 U	1005
168	27247F	TACTICAL SURVEILLANCE SYS	4	299	299	265	261 U	1015
169	27252F	EF-111 SQUADRONS	4	5,507			U	
170	27411F	OVERSEAS AIR WEAPON CONT SYS	4	1,000	2,291	3,466	3,429 U	1017
171	27412F	TACTICAL AIR CONTROL SYSTEM	4	13,761	1,195	5,422	5,455 U	1019
172	27415F	USAFE COMMAND/CONTROL SYS	4	6,603			U	
173	27417F	TAC AIRBORNE COMD/CNTRL SYS	4	62,136	62,402	78,852	62,228 U	1022
174	27423F	ADV COMM SYS	4	45,239	60,410	78,210	69,756 U	1035
175	27431F	TAC AIR INTELL SYS ACTYS	4	2,944	9,066	8,253	7,811 U	1048
176	27584F	SEEK AXLE	4					
177	27585F	SEEK SPINNER	4			26,900	27,600 U	
178	27591F	OMEGA	4					
179	28008F	AMRAAM OPER UTILITY EVAL	4	1,500	3,092		U	1068
180	28010F	JT TACTICAL COMM PROG (TRI-TAC)	4	16,512	26,860	52,875	22,661 U	1071
181	35887F	ELECTROMAGNETIC COMBAT INTEL SPT	4			2,623	1,817 U	1084
182	41115F	C-130 AIRLIFT SQUADRONS (IF)	4	9,000	14,944	688	486 U	1087
183	41118F	C-141 AIRLIFT SQUADRONS (IF)	4	7,000		1,262	1,946 U	1091
184	41119F	C-5 AIRLIFT SQUADRONS (IF)	4	10,935	15,541	6,077	3,997 U	1094
185	41123F	MILITARY AIRLIFT GROUP (IF)	4				879 U	

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186	41314F OPERATIONAL SUPPORT AIRLIFT	4			2,557		U	1101
	TACTICAL PROGRAMS		1,453,702	1,777,724	2,218,002	2,314,418		
187	63431F SPACE COMMUNICATIONS	5	31,021	66,151	52,349	63,934	U	1103
188	63735F WWMCCS ARCHITECTURE	5	13,373	8,966			U	
189	64778F NAVSTAR GPS USER EQUIPMENT	5	126,214	165,377	122,837	98,927	U	1115
190	65708F AIRCRAFT NAVIGATION SYS VERIF	5	1,577	1,694			U	
191	31313F DEFENSE DISSEMINATION PROGRAM							
192	31314F INFRARED PROCESSING + EXPLOITATION							
193	31315F MISSILE AND SPACE TECH COLLECTION							
194	31316I TECHNICAL SENSOR COLLECTION							
195	31317F SENIOR YEAR OPERATIONS							
196	31324F FOREST GREEN							1125
197	31357F INTEG OPERATIONAL NUDETS DETECT SYS							1134
198	33110F DEF SATELLITE COMM SYS	5	35,093	40,149	53,126	25,815	U	1138
199	33126F LONG-HAUL COMMUNICATIONS (DCS)	5	10,854	7,970	9,537	10,337	U	1151
200	33144F ELECTROMAG COMPATIBILITY ANAL CTR	5	6,091	6,860	7,251	7,239	U	1157
201	33401F COMMUNICATIONS SECURITY	5	3,538	1,594	1,621	1,593	U	1161
202	34111F SPECIAL ACTIVITIES							
203	35114F TRAFFIC CNTRL/APPROACH/LANDING SYS	5	2,997	5,280	5,080	3,907	U	1164
204	35156F SUPPORT PROGRAM	5						

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205	35165F	NAVSTAR OPS (SPACE/ORD SEGMENTS)	0				29,560 U	
		INTELLIGENCE AND COMMUNICATIONS		984,978	1,305,352	1,418,213	1,334,519	
206	63248F	CONCEPT DEVELOPMENT	0			984	3,278 U	1169
207	63401F	SPACE VEHICLE SUBSYSTEMS	0	9,870		4,339	6,823 U	1171
208	63402F	SPACE TEST PROGRAM	0	40,978	42,839	62,573	73,738 U	1175
209	63408F	ADV MIL SPACEFLIGHT CAPABILITY	0			2,670	3,368 U	1187
210	63438F	SATELLITE SYS SURVIVABILITY	0		11,058	22,525	38,304 U	1190
211	63707F	WEATHER SYSTEMS	0	2,883	2,889	3,438	3,387 U	1197
212	64211F	ADV AERIAL TARGETS DEV	0	16,696	12,254	13,856	14,193 U	1201
213	64227F	FLIGHT SIMULATOR DEVELOPMENT	0	5,849	11,258	5,439	8,458 U	1206
214	64411F	SPACE SHUTTLE	0	246,265	266,000	355,629	293,068 U	1209
215	64707F	WEATHER SYSTEMS	0	3,593	3,786	4,064	6,417 U	1222
216	64738F	RANGE IMPROVEMENT	0	11,909	22,615	25,311	22,933 U	1225
217	64747F	ELECTROMAG RADIATION TEST FACIL	0	3,756	3,088	7,487	7,459 U	1233
218	64755F	IMPROVED CAPABILITY FOR DT+E	0			46,478	59,423 U	1236
219	65101F	PROJECT AIR FORCE	0	12,902	10,748	16,231	16,954 U	1244
220	65304F	ACQ/COMD SPT - TELECOM	0	4,447	4,682	4,784	5,034 U	1248
221	65306F	RANCH HAND II EPIDEMIOLOGY STUDY	0		3,855	840	8,234 U	1251
222	65708F	AIRCRAFT NAVIGATION SYS VERIF	0			15,590	16,085 U	1254
223	65806F	ACQUISITION AND COMMAND SUPPORT	0	236,046	241,702	269,229	274,308 U	1257
224	65807F	TEST AND EVALUATION SPT	0	334,887	380,773	354,273	383,229 U	1275

DEPARTMENT OF THE AIR FORCE
FY 1963 R D T & E PROGRAM

EXHIBIT R-1

APPROPRIATION: 9800 F RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE

DATE: 08 FEB 1962

LINE NO	PROGRAM ELEMENT NUMBER	ITEM NOMENCLATURE	ACT	THOUSANDS OF DOLLARS				DES. SUM. Page
				FY 1961	FY 1962	FY 1963	FY 1964	
225	65808F	ADV SYS ENGINEERING/PLAN	0	4,091	4,981	5,440	5,894 U	1288
226	65872F	PRODUCTIVITY IMPROVEMENT	0			2,201	2,271 U	1291
227	65890F	INSTL AUDIOVISUAL SPT (R/D)	0	5,064	4,420	5,622	6,756 U	1294
228	65898F	MGT HQ (RESEARCH/DEV)	0	32,246	32,440	35,341	35,766 U	1296
229	35110F	SATELLITE CONTROL FACILITY	0	15,387	67,645	60,219	66,350 U	1299
230	35119F	SPACE BOOSTERS	0	29,394	19,228	15,011	10,823 U	1302
231	35130F	CONSOLIDATED SPACE OPERATIONS CENTER	0	3,781	19,427	32,116	59,326 U	1311
232	35160F	DEF METEOROLOGICAL SATELLITE PROG	0	16,902	47,222	27,751	35,370 U	1314
233	35171F	SPACE LAUNCH SUPPORT	0	15,000	20,151	16,419	40,346 U	1321
234	78011F	INDUSTRIAL PREPAREDNESS	0			1,977	4,867 U	1325
235	78019F	UTAH TESTING + TRAINING RANGE	0	1,776	1,793	2,080	2,338 U	1328
236	78026F	PRODUCT/RELIABLE/AVAIL/MAINTAIN PROG	0	8,561	9,165	9,661	10,145 U	1331
237	01004F	INTERNATIONAL ACTIVITIES	0	2,319	2,595	2,786	2,782 U	1336
		DEFENSEWIDE MISSION SUPPORT		1,065,684	1,229,444	1,432,369	1,527,190	
TOTAL RESEARCH DEVELOPMENT TEST + EVAL, AIR FORCE				7,193,347	8,676,310	11,220,400	11,448,036	

RESEARCH, DEVELOPMENT, TEST AND EVALUATION
 DETAIL BY PROPOSED FY 1982 SUPPLEMENTAL ESTIMATES
 (\$ Thousands)

<u>PROGRAM ELEMENT</u>		<u>BASE ESTIMATE</u>	<u>SUPPLEMENTAL</u>	<u>ADJUSTED ESTIMATE</u>
<u>NUMBER</u>	<u>TITLE</u>			
<u>Strategic Programs</u>				
64312F	M-X	1,906,157	57,000	1,963,157
Subtotal - Strategic Programs		(3,513,448)	(57,000)	(3,570,448)
All other programs		<u>5,305,862</u>	<u>-</u>	<u>5,305,862</u>
TOTAL PROGRAM		8,819,310	57,000	8,876,310

862

Research, Development, Test and Evaluation, Air Force

Section 3 - Performer Distribution

	FY 1981 Program <u>Actual</u>	FY 1982 Program <u>Requirements</u>	FY 1983 Program <u>Requirements</u>	FY 1984 Program <u>Requirements</u>
1. For operation of installations of the reporting Service <u>Government</u> operated	807,030	831,881	931,321	980,228
2. For operation of installations of the reporting Service <u>Contractor</u> operated	151,030	164,220	164,416	172,000
3. For contracts <u>directly in support</u> of work performed at installations of the reporting Service	119,058	148,170	162,170	170,000
4. For work assigned to other Department of Defense activities	189,410	203,400	210,000	210,000
5. For work assigned to activities of other Government agencies	165,752	195,993	204,168	205,000
6. For work performed by industrial contractors ("profit" organizations)	5,167,621	6,633,476	8,715,567	8,835,348
7. For work performed by educational institutions				
a. <u>Designated Federal Contract Research Centers</u>	66,453	80,371	92,575	111,810
b. <u>Other Institutions</u>	238,734	351,744	425,000	425,000
8. For work performed by other "non-profit" organizations	228,259	267,055	315,183	338,649
Total Research, Development, Test and Evaluation Appropriation	7,133,347	8,876,310	11,220,400	11,448,035

Research, Development, Test and Evaluation, Air Force

Section 4 - Installation Analysis

This installation analysis shows dollar and manpower resources utilized by Air Force installations in the accomplishment of in-house research, development, test and evaluation efforts, including contractor operated installations, under the management control of the Air Force. Installations reported include those classified as research, development, or test installations as well as research, development, or test units located at multi-mission installations. Funds reported cover both direct and indirect costs as well as support costs. Amounts listed under the category "RDT&E Funds" include funds received directly and reimbursable RDT&E effort performed for other Air Force activities and other Department of Defense agencies. "All Other Funds" show in-house effort for other than Research, Development, Test and Evaluation, and Military Personnel costs. Military Personnel costs include those military personnel assigned to RDT&E activities.

Personnel data is reported in terms of man years rather than the number of personnel spaces. Civilian personnel man-years include both those charged directly to the RDT&E appropriation and to reimbursable activities. Contractor personnel shown are engaged in the operation of Air Force installations.

INSTALLATION ANALYSIS

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INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TOA (\$ In Thousands)							PERSONNEL (Man-Years)						
			RDT&E Funds			All Other Funds	Sub-Total	Mil Pers	TOTAL	Civil Service			Contractor		Mil Pers	TOTAL
			Dept of Air Force	Other Parent Dept	Other DOD					Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Other	Paid From RDT&E	Paid From Other	In RDT&E Work	
1	Defense Research Sciences, Various Locations	81 82 83 84	4,689 5,056 5,285 5,448	43 15 20 20	22 18 23 23		4,754 5,089 5,328 5,491	1,861 1,900 2,139 2,150	6,615 6,989 7,467 7,641	98 100 100 100					69 70 70 70	167 170 170 170
2	Geophysics Laboratory, L.G. Hanscom AFB, MA	81 82 83 84	17,774 17,693 18,660 19,010	7,632 8,350 8,703 8,703	332 360 412 412	206 459 494 494	25,944 26,862 28,269 28,619	2,201 2,260 2,533 2,550	28,145 29,122 30,802 31,169	482 472 472 472					113 114 113 113	595 586 585 585
3	Materials Laboratory, Wright-Patterson AFB, OH	81 82 83 84	14,408 14,774 15,632 15,874	4,583 4,535 4,432 4,432	558 547 561 561	10 10 10 10	19,559 19,866 20,635 20,877	1,523 1,528 1,720 1,730	21,082 21,394 22,355 22,607	420 390 390 390					54 54 54 54	474 444 444 444
4	Aerospace Flight Dynamics Lab, Wright-Patterson AFB, OH	81 82 83 84	28,497 30,173 31,809 32,358	8,538 8,585 8,459 8,459	448 835 828 828	319 442 244 244	37,802 40,035 41,340 41,889	5,079 5,282 5,740 5,977	42,881 45,317 47,280 47,866	773 790 790 790	10 10 10 10				201 204 204 204	984 1,004 1,004 1,004
5	Aerospace Biotechnology, Brooks AFB, TX	81 82 83 84	19,998 20,832 21,298 21,755	1,804 1,630 1,273 1,273	257 56 56 56	250 130 135 135	22,309 22,648 22,762 23,219	10,400 10,077 11,169 10,905	32,709 32,725 33,931 34,124	470 425 425 425					548 535 528 517	1,018 960 953 942
6	Aerospace Propulsion Lab, Wright-Patterson AFB, OH	81 82 83 84	15,378 15,721 16,681 16,982	5,931 7,664 7,269 7,269	5 132 20 20	43 6 20 20	21,357 23,523 23,970 24,271	1,523 1,627 1,827 1,837	22,880 25,150 25,797 26,108	436 424 424 424	1 1 1 1				54 56 56 56	491 481 481 481
7	Aerospace Avionics Lab, Wright-Patterson AFB, OH	81 82 83 84	24,470 25,192 26,729 27,113	6,437 10,696 8,002 8,002	598 497 15 15	66 67 73 73	31,571 36,452 34,819 35,203	4,502 4,901 5,511 5,510	36,073 41,353 40,330 40,713	739 735 735 735					167 180 180 179	906 915 915 914

INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TOA (\$ In Thousands)							PERSONNEL (Man-Years)						
			RDT&E Funds			All Other Funds	Sub-Total	Mil Pers	TOTAL	Civil Service			Contractor		Mil Pers	TOTAL
			Dept of Air Force	Other Parent Dept	Other DOD					Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Other	Paid From RDT&E	Paid From Other	In RDT&E Work	
8	Rocket Propulsion Lab Edwards AFB, CA	81	10,610	3,844	2	4	14,460	3,690	18,150	279		5			177	461
		82	11,277	3,648	3		14,928	3,694	18,622	253		5			175	433
		83	12,061	3,648	3		15,712	4,168	19,880	255		5			175	435
		84	12,301	3,648	3		15,952	4,197	20,149	255		5			175	435
9	Advanced Weapons Lab, Kirtland AFB, NM	81	12,590	27,980	5,032	136	45,738	15,289	61,027	548					622	1,170
		82	13,300	31,112	5,663	150	50,225	16,175	66,400	500					643	1,143
		83	15,099	35,791	6,007	190	57,087	18,200	75,287	508					644	1,152
		84	15,333	35,791	6,007	190	57,321	18,329	75,650	508					645	1,153
10	Armament Laboratory, Eglin AFB, FL	81	12,003	8,720	4,917	400	26,040	4,082	30,122	372		5			166	543
		82	12,633	11,933	1,923		26,489	4,246	30,735	375		5			171	551
		83	13,474	8,796	1,650		23,920	4,778	28,698	375		5			171	551
		84	13,723	8,796	1,650		24,169	4,807	28,976	375		5			171	551
11	Command, Control & Communications Center, Griffiss AFB, NY	81	28,293	18,999	1,951	1,630	50,873	4,748	55,621	1,022		15			189	1,226
		82	27,956	20,970	2,134	980	52,040	5,276	57,316	1,030		15			214	1,259
		83	29,472	22,028	2,240	1,004	54,744	5,895	60,639	1,050		15			211	1,276
		84	29,865	22,028	2,240	1,004	55,137	5,899	61,036	1,050		15			209	1,274
12	Human Resources Laboratory, Lackland AFB, TX	81	9,604	1,155			10,759	2,578	13,337	243					126	369
		82	9,140	1,215			10,355	2,657	13,012	238					128	366
		83	10,146	1,110			11,256	2,933	14,189	238					125	363
		84	10,363	1,110			11,473	2,907	14,380	238					122	360
13	Electro-Magnetic Compatibility Analysis Cntr, Annapolis, MD	81	6,091	3,700	10,400	8,468	28,659	210	28,869	39			375	175	8	597
		82	6,880	4,011	11,000	10,011	31,902	214	32,116	40			400	205	8	653
		83	7,251	4,247	11,200	10,451	33,149	239	33,388	40			405	206	8	659
		84	7,239	4,485	12,400	10,926	35,050	240	35,290	40			405	208	8	661
14	Aeronautical Systems Division, Wright-Patterson AFB, OH	81	104,343	6,900	1,000	4,500	116,743	37,057	153,800	3,334		248			1,475	5,057
		82	105,839	6,800	1,000	4,500	118,139	38,894	157,033	3,373		238			1,526	5,137
		83	113,180	6,800	1,000	4,500	125,480	45,284	170,764	3,414		285			1,570	5,269
		84	114,384	6,800	1,000	4,500	126,684	47,752	174,436	3,491		360			1,652	5,503

INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TOA (\$ In Thousands)							PERSONNEL (Man-Years)						
			RDT&E Funds			All Other Funds	Sub-Total	Mil Pers	TOTAL	Civil Service			Contractor		Mil Pers	TOTAL
			Dept of Air Force	Other Parent Dept	Other DOD					Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Other	Paid From RDT&E	Paid From Other	In RDT&E Work	
15	Electronic Systems Division, L.G. Hanscom AFB, MA	81	57,914	1,500		1,000	60,414	31,404	91,818	1,639		90			1,270	2,999
		82	55,061	1,400		1,000	57,461	33,590	91,051	1,619		85			1,318	3,022
		83	63,047	1,400		1,000	65,447	39,283	104,730	1,612		103			1,362	3,077
		84	64,366	1,400		1,000	66,766	41,018	107,784	1,626		135			1,419	3,180
16	Space Division Los Angeles, CA	81	38,157	2,000	100	200	40,457	31,200	71,657	876		2			1,242	2,120
		82	39,962	1,500	100	200	41,762	32,163	73,925	936		2			1,262	2,200
		83	43,858	1,400	100	200	45,558	36,975	82,533	1,014		2			1,282	2,298
		84	44,886	1,400	100	200	46,586	38,503	85,089	1,038		2			1,332	2,372
17	Ballistic Missile Office Norton AFB, CA	81	7,685			100	7,785	8,390	16,175	270		1			334	605
		82	7,722			100	7,822	8,512	16,334	275		1			334	610
		83	8,362			100	8,462	9,633	18,095	277		1			334	612
		84	8,695			100	8,795	9,684	18,479	281		1			335	617
18	Aerospace Medical Division Brooks AFB, TX	81	13,073	100		100	13,273	8,290	21,563	204					330	534
		82	13,307	100		100	13,507	8,410	21,917	204					330	534
		83	14,525	100		100	14,725	9,518	24,243	234					330	564
		84	15,014	100		100	15,214	9,655	24,869	236					334	570
19	Headquarters AF Systems Command Andrews AFB, MD	81	34,808	2,000		1,000	37,808	31,088	68,896	776		18			1,185	1,979
		82	30,675	1,800		1,000	33,475	31,410	64,885	782		18			1,186	1,986
		83	38,012	1,800		1,000	40,812	35,081	75,893	801		18			1,177	1,996
		84	38,596	1,800		1,000	41,396	35,259	76,655	812		18			1,176	2,006
20	Arnold Engineering Development Center, Tullahoma, TN	81	108,929	43,000	3,200	4,800	159,929	1,933	161,862	157			3,291		122	3,570
		82	116,859	48,600	3,100	3,400	171,959	2,085	174,044	186			3,226		130	3,542
		83	138,434	52,300	2,600	2,800	196,134	2,676	198,810	185			3,226		147	3,558
		84	147,296	50,400	2,500	4,900	205,096	2,786	207,882	187			3,226		152	3,565
21	Armament Division Eglin AFB, FL	81	119,044	50,400	2,100	1,100	172,644	63,033	235,677	2,633		75	1,260		3,734	7,702
		82	129,604	55,000	2,200	1,000	187,804	64,585	252,389	2,636		70	1,246		3,738	7,690
		83	144,448	59,400	2,000	1,100	206,948	74,382	281,330	2,630		90	1,246		3,799	7,765
		84	153,562	63,800	1,400	1,100	219,862	75,461	295,323	2,639		108	1,246		3,832	7,825

INSTALLATION ANALYSIS - IN-HOUSE

Item No.	Installation & Location	FY	TOA (\$ In Thousands)							PERSONNEL (Man-Years)						
			RDT&E Funds			All Other Funds	Sub-Total	Mil Pers	TOTAL	Civil Service			Contractor		Mil Pers	TOTAL
			Dept of Air Force	Other Parent Dept	Other DOD					Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Other	Paid From RDT&E	Paid From Other	In RDT&E Work	
22	AF Flight Test Center Edwards AFB, CA	81	78,424	34,700	1,100	1,500	115,724	48,490	164,214	1,496		80	125		3,110	4,811
		82	86,574	38,400	3,500	1,700	130,174	49,900	180,074	1,486		80	133		3,111	4,810
		83	97,795	45,800	1,800	1,600	146,995	57,137	204,132	1,531		80	131		3,138	4,880
		84	107,304	49,700	500	900	158,404	58,618	217,022	1,573		80	131		3,197	4,981
23	4950th Test Wing Wright-Patterson AFB, OH	81	46,351	21,700	1,300	2,300	71,651	13,322	84,973	928		10			841	1,779
		82	54,382	23,100	3,900	2,100	83,482	13,521	97,003	929		10			843	1,782
		83	63,783	23,300	3,800	2,700	93,583	16,244	109,827	939		10			892	1,841
		84	81,383	27,200	3,400	1,800	113,783	16,356	130,139	949		10			892	1,851
24	SHAPE Technical Center, The Hague, Netherlands	81	2,319				2,319		2,319	23						23
		82	2,595				2,595		2,595	22						22
		83	2,788				2,788		2,788	19						19
		84	2,762				2,762		2,762	19						19
GRAND TOTAL, IN HOUSE		81	815,452	261,666	33,322	28,132	1,138,572	331,893	1,470,465	18,257	560	5,051	175	16,137	40,180	
		82	853,207	291,064	36,968	27,355	1,208,594	342,907	1,551,501	18,220	540	5,005	205	16,330	40,300	
		83	951,829	306,078	34,295	27,721	1,319,923	393,265	1,713,188	18,458	625	5,008	206	16,570	40,867	
		84	1,005,612	316,616	33,095	28,696	1,384,019	402,130	1,786,149	18,653	750	5,008	208	16,844	41,463	

INSTALLATION ANALYSIS - FCRCs

Item No.	FCRC & Location	TOA (\$ in Thousands)								Personnel 1/							
		RDT&E Funds				All Other Funds	Sub-Total	Mil Pers	TOTAL	Professional 2/			Support				
		FY	Dept of Air Force	Other Parent Dept	Other DOD					Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Other	Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Other	Mil Pers	TOTAL
25.	AEROSPACE CORP., LOS ANGELES CA 3/	81	96,756	0	12,225	79,484	188,465	0	188,465	875	105	705	727	87	586	0	3,085
		82	117,474	0	15,826	96,504	229,804	0	229,804	964	119	792	791	98	649	0	3,413
		83	149,368	0	20,175	105,740	275,283	0	275,283	1,093	128	774	896	105	635	0	3,631
		84	158,819	0	22,198	131,181	312,198	0	312,198	1,064	139	872	872	114	715	0	3,776
26.	LINCOLN LAB., LEX, MA	81	33,256	0	34,150	5,858	73,264	0	73,264	375	340	0	662	596	0	0	1,973
		82	44,329	0	45,631	5,925	95,885	0	95,885	358	357	0	662	596	0	0	1,97
		83	47,169	0	51,283	6,424	104,876	0	104,876	358	357	0	662	596	0	0	1,973
		84	49,776	0	51,105	6,822	107,703	0	107,703	358	357	0	662	596	0	0	1,973
27.	MITRE CORP., BEDFORD, MA 4/	81	63,797	0	41,457	14,734	119,988	0	119,988	702	450	151	276	177	59	0	1,815
		82	76,513	0	51,202	16,135	143,850	0	143,850	751	498	156	300	199	62	0	1,966
		83	89,853	0	62,617	22,150	174,620	0	174,620	808	507	189	323	203	76	0	2,106
		84	108,876	0	73,830	28,190	210,896	0	210,896	912	519	219	365	207	88	0	2,310

INSTALLATION ANALYSIS - FCRCs (CONTINUED)

Item No.	FCRC & Location	TOA (\$ in Thousands)								Personnel 1/							
		RDT&E Funds				All Other Funds	Sub-Total	Mil Pers	TOTAL	Professional 2/				Support			
		FY	Dept of Air Force	Other Parent Dept	Other DOD					Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Other	Paid From Parent Dept RDT&E	Paid From Other RDT&E	Paid From Other	Mil Pers	TOTAL
28	PROJECT AIR FORCE RAND CORP., SANTA MONICA, CA	81	12,902	0	0	0	12,902	0	12,902	140	0	0	140	0	0	0	280
		82	13,748	0	0	0	13,748	0	13,748	136	0	0	136	0	0	0	272
		83	16,231	0	0	0	16,231	0	16,231	146	0	0	146	0	0	0	292
		84	16,954	0	0	0	16,954	0	16,954	144	0	0	144	0	0	0	288
	GRAND TOTAL FCRCs	81	206,711	0	87,832	100,076	394,619	0	394,619	2,092	895	856	1,805	860	645	0	7,153
		82	252,064	0	112,659	118,564	483,287	0	483,287	2,209	974	948	1,889	893	711	0	7,624
		83	302,621	0	134,075	134,314	571,010	0	571,010	2,405	992	963	2,027	904	711	0	8,002
		84	334,425	0	147,133	166,193	647,751	0	647,751	2,478	1,015	1,091	2,043	917	803	0	8,347

1/ Shown in many years.

2/ Defined as members of technical staff in contracts with these institutions.

3/ FY 81 includes flow-through costs of \$7,426,000. FY 82 and FY 83 includes flow-through costs of \$13,000,000 each. Flow-through costs are not subject to FCRC limitations.

4/ Other DOD RDT&E funds contain DCA and NSA funding that is part of the Air Force ceiling.
FY81: \$2,656,000, FY82: \$3,858,000, FY83: \$2,722,000, FY84: \$2,934,000.

NOTE: Air Force ceiling for each FCRC is identified on the page titled "Summary of Federal Contract Research Centers By Appropriation"

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Research, Development, Test and Evaluation, Air Force

Section 5 - Analysis of Reimbursable Program

(\$ In Thousands)

<u>Customer</u>	<u>FY 1981 Actual</u>	<u>FY 1982 Estimate</u>	<u>FY 1983 Estimate</u>
Department of the Air Force	244,827	253,000	282,000
<u>Other Department of Defense Components</u>			
Department of the Army	106,258	110,000	120,000
Department of the Navy	71,720	72,000	79,000
Other Department of Defense Components	61,689	62,000	68,000
<u>Activities Outside Department of Defense</u>			
National Aeronautics and Space Administration	99,257	100,000	110,000
Trust Funds (Foreign Military Sales)	26,527	25,000	25,000
Non-Federal Sources	17,134	17,000	19,000
Other Federal Sources	28,785	29,000	31,000
Total Reimbursements	656,197	668,000	734,000

ANALYSIS OF REIMBURSABLE PROGRAM

Orders are received from other Air Force appropriations, the Security Assistance Program, and other activities outside the Department for RDT&E efforts for special tests conducted at various test centers and laboratories. Major requirements are:

- a. Army - Support of training exercises, qualification firing, and equipment testing.
- b. Navy - Support of ammunition testing, projectile analysis, construction of MRASM simulated runway targets, technical emissivity measurements, and adaptive ECM/ALQ-162 technical evaluation of miniature expendable jammers.
- c. Other DoD Components - Support of (1) Defense Mapping Agency data collection and geodetic/geophysics projects, and (2) Defense Nuclear Agency Boeing SLED test contract and missile material measurements for the nuclear weapons effect program.
- d. NASA - Support of Space Shuttle operations.
- e. FMS - Support of "case dedicated" personnel and item testing.
- f. Non-Federal - Support of University studies, commercial sales, and test/evaluation.
- g. Other Federal - Support of Environmental Protection Agency, Environmental Research Development Agency, and Federal Aviation Agency.

RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E), AIR FORCE

SECTION 6 - FEDERAL CONTRACT RESEARCH CENTERS (FCRCs)

FCRCs are organizations primarily engaged in providing independent, specialized technical and scientific support necessary to supplement resources available within the Department of Defense (DOD) and assist the Air Force in the planning, development, and execution of RDT&E programs as well as programs financed by other Air Force appropriations. Amounts included in this request are specifically identified by FCRC, appropriation, and program. The estimate for the Air Force portion of the work allocated to FCRCs totals \$490,214,000 and \$556,319,000 in FY 1983 and FY 1984, respectively.

The Air Force is designated the cognizant component for Aerospace, Lincoln Laboratory, MITRE C³ Division and the Project AIR FORCE portion of The Rand Corporation. Work performed by these FCRCs is carefully managed in accordance with guidelines approved by the Under Secretary of Defense for Research and Engineering. The FCRCs are controlled to ensure that the work is appropriate for an FCRC, that their work does not duplicate that of others and that they directly support the requirements of the DOD.

A detailed tabulation of the FCRC programs follows.

SUMMARY OF FEDERAL CONTRACT RESEARCH CENTERS BY APPROPRIATION
(\$ In Thousands)

	<u>FY 1981 ACTUALS</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>	<u>FY 1984 ESTIMATES</u>
AEROSPACE CORPORATION				
RDT&E	96,756	117,474	149,368	158,819
MISSILE PROCUREMENT	36,657	44,507	37,280	45,751
OTHER PROCUREMENT	34,367	41,726	49,746	59,424
OPERATIONS & MAINTENANCE	<u>8,460</u>	<u>10,271</u>	<u>18,714</u>	<u>26,006</u>
TOTAL AEROSPACE CORPORATION <u>1/</u>	176,240	213,978	255,108	290,000 <u>2/</u>
LINCOLN LABORATORY				
RDT&E	71,038	83,714	90,876	95,249
OTHER PROCUREMENT	1,700	1,848	1,983	2,106
OPERATIONS AND MAINTENANCE	<u>9,664</u>	<u>10,506</u>	<u>11,291</u>	<u>12,010</u>
TOTAL LINCOLN LABORATORY <u>3/</u>	82,402	96,068	104,150	109,365
MITRE CORPORATION				
RDT&E	66,453	80,371	92,575	111,810
AIRCRAFT PROCUREMENT	736	0	0	0
OTHER PROCUREMENT	5,904	7,303	11,439	16,945
OPERATIONS AND MAINTENANCE	<u>8,094</u>	<u>8,832</u>	<u>10,711</u>	<u>11,245</u>
TOTAL MITRE CORPORATION	81,187	96,506	114,725	140,000
RAND CORPORATION				
RDT&E	<u>12,902</u>	<u>13,748</u>	<u>16,231</u>	<u>16,954</u>
TOTAL RAND CORPORATION	12,902	13,748	16,231	16,954

SUMMARY OF FEDERAL CONTRACT RESEARCH CENTERS BY APPROPRIATION
(\$ In Thousands) (CONTINUED)

	<u>FY 1981 ACTUALS</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>	<u>FY 1984 ESTIMATES</u>
TOTAL PROGRAM SUMMARY BY APPROPRIATION				
RDT&E	247,149	295,307	349,050	382,832
MISSILE PROCUREMENT	36,657	44,507	37,280	45,751
AIRCRAFT PROCUREMENT	736	0	0	0
OTHER PROCUREMENT	41,971	50,877	63,168	78,475
OPERATIONS & MAINTENANCE	<u>26,218</u>	<u>29,609</u>	<u>40,716</u>	<u>49,261</u>
TOTAL FCRCs	352,731	420,300	490,214	556,319

1/ Includes funds not subject to FCRC limitations (outside contracts, flow through costs, FY 81 - \$7,426,000, FY 82 - \$13,000,000 and FY 83 - \$13,000,000)

2/ Excludes \$13,000,000 not subject to FCRC limitations (outside contracts, flow through costs)

3/ Includes outside procurement cost (FY 81 - \$43,288,000, FY 82 - \$45,814,000, FY 83 - \$50,557,000 and FY 84 - \$52,767,000)

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Aerospace Corporation

(\$ In Thousands)

<u>RDT&E APPROPRIATION</u>	<u>FY 1981 ACTUALS</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>	<u>FY 1984 ESTIMATES</u>
12311F NORAD COC	2,225	2,702	2,809	3,335
12424F SPACE TRACK	571	742	926	987
12431F DEFENSE SUPPORT PROGRAM	1,219	1,926	7,532	7,036
12433F IONDS	0	0	350	400
31060F DEFENSE DISSEMINATION PROGRAM	2,593	0	0	0
33110F DEFENSE SATELLITE COMM SYS	7,499	9,104	11,354	11,500
33601F AIR FORCE SAT COMM SYS	5,031	6,759	11,200	11,500
33603F MILSTAR	0	0	10,000	11,400
35119F SPACE BOOSTERS	4,828	6,162	7,389	4,200
35158F SATELLITE DATA SYSTEM	1,713	2,079	2,891	2,243
35160F DEF METEOROLOGICAL SATELLITE PROG	958	1,363	1,700	1,700
35171F SPACE LAUNCH SUPPORT	0	0	740	785
61101F IN-HOUSE LAB INDEP RCH	126	153	182	217
61102F DEFENSE RESEARCH SCIENCES	77	144	250	320
62101F GEOPHYSICS	39	47	56	67
62102F MATERIALS	135	165	196	234
62302F ROCKET PROPULSION	2,517	3,054	385	316
62601F ADVANCED WEAPONS	803	975	825	700
63311F ADVANCED STRATEGIC MISSILE SYSTEM	1,974	2,497	2,857	600
63401F SPACE VEHICLE SUBSYSTEM	1,539	0	998	2,117
63402F SPACE TEST PROGRAM	4,608	6,345	6,726	12,350
63406F ADV MIL SPACECRAFT CAPABILITY	0	0	730	640
63424F MISSILE SURVEILLANCE TECH	1,442	1,750	1,800	2,400
63425F ADV WARNING SYSTEM	0	868	3,400	3,800
63428F SPACE SURVEILLANCE TECH	3,386	4,112	2,739	3,159
63431F ADVANCED SPACE COMMUNICATIONS	2,032	2,718	5,080	5,692

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FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Aerospace Corporation (CONTINUED)

(\$ In Thousands)

<u>RD&E APPROPRIATION (CONTINUED)</u>	<u>FY 1981 ACTUALS</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>	<u>FY 1984 ESTIMATES</u>
63438F SATELLITE SYSTEMS SURVIVABILITY	3,970	4,699	4,715	5,193
63439F ADV SPACE APPLICATIONS PROGRAM	1,883	0	0	0
63603F LASER SUPPORT PROG	0	0	1,600	1,800
63728F ADV COMPUTER TECHNOLOGY	58	71	84	100
64222F NUCLEAR WEAPON SUPPORT	0	0	50	75
64312F M-X	1,255	1,280	5,000	5,200
64406F SPACE DEFENSE SYSTEM	9,608	12,050	8,773	9,213
64411F SPACE SHUTTLE	613	623	2,100	2,700
64711F SYSTEMS SURVIVABILITY	223	270	245	245
64740F APPL FOR INFO PROCESSING TECH	116	141	168	201
64778F NAVSTAR USER EQUIPMENT	12,847	15,600	11,368	12,552
65808F ADV SYS ENG PLAN	<u>1,271</u>	<u>2,643</u>	<u>1,916</u>	<u>2,100</u>
TOTAL RD&E	96,756	117,474	149,368	158,819
 <u>MISSILE PROCUREMENT APPROPRIATION</u>				
12431F DEFENSE SUPPORT PROGRAM	19,747	23,976	4,007	3,664
33110F DEFENSE SATELLITE COMM SYS	1,514	1,838	7,840	10,556
35119F SPACE BOOSTERS	542	659	2,522	3,420
35158F SATELLITE DATA SYSTEM	685	832	2,526	3,317
35160F DEF METEOROLOGICAL SATELLITE PROG	8,846	10,740	7,900	8,300
35171F SPACE LAUNCH SUPPORT	<u>0</u>	<u>0</u>	<u>2,900</u>	<u>3,480</u>
TOTAL MISSILE PROCUREMENT				

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Aerospace Corporation (CONTINUED)

(\$ In Thousands)

	<u>FY 1981</u>	<u>FY 1982</u>	<u>FY 1983</u>	<u>FY 1984</u>
<u>OTHER PROCUREMENT APPROPRIATION</u>	<u>ACTUALS</u>	<u>ESTIMATES</u>	<u>ESTIMATES</u>	<u>ESTIMATES</u>
12431F DEFENSE SUPPORT PROGRAM	0	0	3,500	3,200
35151F SATELLITE CONTROL FACILITY COMM	<u>107</u>	<u>0</u>	<u>154</u>	<u>184</u>
TOTAL OTHER PROCUREMENT				
 <u>OPERATIONS & MAINTENANCE</u> <u>APPROPRIATION</u>				
12431F DEFENSE SUPPORT PROGRAM	0	0	3,500	3,200
27247F TACTICAL SURVEILLANCE SYSTEM	893	1,084	0	0
33110F DEF SATELLITE COMM SYS	1,468	1,875	1,444	1,619
35119F SPACE BOOSTERS	1,683	1,949	0	0
35158F SATELLITE DATA SYSTEM	4,177	5,072	3,700	5,200
35171F SPACE LAUNCH SUPPORT	<u>0</u>	<u>0</u>	<u>9,720</u>	<u>15,537</u>
TOTAL OPERATIONS & MAINTENANCE				

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FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Aerospace Corporation (CONTINUED)

AEROSPACE CORPORATION. Aerospace Corporation provides scientific and engineering assistance to the Air Force and other DOD agencies primarily in the field of space systems. Efforts include general systems engineering/integration, development planning, space technology, research and experimentation, and foreign technology. Major Air Force programs receiving Aerospace support are Space Defense, Space Shuttle, Satellite Data System, Defense Support Program, and Special Activities. The other DOD agencies include such organizations as Defense Advanced Research Projects Agency (DARPA), Army, Navy, and Defense Mapping Agency (DMA).

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Lincoln Laboratory

(\$ In Thousands)

<u>RDT&E APPROPRIATION</u>	<u>FY 1981 ACTUALS</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>	<u>FY 1984 ESTIMATES</u>
27417F TAC AIRBORNE COMD/CNTRL SYS	1,345	940	650	300
27423F ADVANCED COMM SYS	1,200	5,600	8,000	6,000
33401F COMMUNICATIONS SECURITY	217	275	530	725
61102F DEFENSE RESEARCH SCIENCES	1,741	2,505	2,814	4,635
62204F AEROSPACE AVIONICS/VHSI CIRCUITS	1,650	1,660	1,675	1,685
62601F ADVANCED WEAPONS	574	165	175	190
62702F COMMAND/CONTROL/COMMUNICATIONS	1,455	5,021	6,296	6,789
63250F LINCOLN LABORATORY	22,452	22,117	23,079	25,898
63311F ADV STRATEGIC MISSILE SYS	8,320	7,733	9,480	10,170
63428F SPACE SURVEILLANCE TECHNOLOGY	9,648	10,320	10,915	11,085
63431F ADVANCED SPACE COMMUNICATIONS	7,690	9,250	9,750	10,250
63601F CONVENTIONAL WEAPONS	3,699	3,900	3,500	3,500
63605F ADVANCED RADIATION TECH	1,924	3,050	3,871	4,311
63742F COMBAT IDENTIFICATION TECH	2,739	3,500	3,500	3,500
63747F PAVE MOVER	1,685	1,100	0	0
64738F PROTECTIVE SYSTEMS	910	1,480	1,170	400
TOTAL AIR FORCE RDT&E	67,249	78,616	85,405	89,438

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Lincoln Laboratory (CONTINUED)

(\$ In Thousands)

	<u>FY 1981 ACTUALS</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>	<u>FY 1984 ESTIMATES</u>
<u>OTHER RDT&E SUPPORT</u>				
33125K LONG HAUL COMMUNICATIONS	1,555	1,691	1,814	1,926
61102A DEFENSE RESEARCH SCIENCES	1,624	2,744	2,945	3,128
62712E MATERIALS PROCESSING TECH.	<u>260</u>	<u>283</u>	<u>304</u>	<u>323</u>
TOTAL OTHER RDT&E				
TOTAL RDT&E	71,038	83,714	90,876	95,249
<u>OTHER PROCUREMENT APPROPRIATIONS</u>				
12424F SPACETRACK	1,700	1,848	1,983	2,106
<u>OPERATIONS AND MAINTENANCE APPROPRIATION</u>				
12424F SPACETRACK	6,010	6,534	7,011	7,445
31315F MISSILE & SPACE TECH COLLECT	2,224	2,418	2,594	2,793
33601F AIR FORCE SAT COM SYS	<u>800</u>	<u>869</u>	<u>933</u>	<u>991</u>
TOTAL OPERATIONS AND MAINTENANCE				
TOTAL AIR FORCE	82,402	96,068	104,150	109,365
OUTSIDE PROCUREMENT	<u>43,288</u>	<u>45,814</u>	<u>50,557</u>	<u>52,767</u>
AIR FORCE CEILING ESTIMATE	39,114	50,254	53,593	56,598

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FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Lincoln Laboratory (CONTINUED)

LINCOLN LABORATORY. Lincoln Laboratory is part of the Massachusetts Institute of Technology. The mission of the Laboratory is to carry out a program of research and development pertinent to national defense with particular emphasis on advanced electronics. A major portion of the research program concerns space communications satellite technology and advanced ballistic re-entry system research. The technical program is managed by the Joint Advisory Committee made up of representatives from the Army, Navy, Air Force, and Defense Advanced Research Projects Agency (DARPA). Major Air Force programs being supported by Lincoln Laboratory are the Advanced Strategic Missile Systems, Advanced Space Communications Technology, Space Object Surveillance, and Combat Identification Systems. Also supported are other DOD agencies such as DARPA, Navy, and the Defense Communications Agency (DCA).

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FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
MITRE Corporation

(\$ In Thousands)

<u>RDT&E APPROPRIATION</u>	<u>FY 1981 ACTUALS</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>	<u>FY 1984 ESTIMATES</u>
11312F POST-ATTACK COMD/CNTRL SYS	3,266	5,952	4,694	4,587
11316F SAC COMMUNICATIONS	3,606	3,875	4,079	3,525
12311F NORAD, COC	1,067	2,016	3,120	2,708
12325F JOINT SURVEILLANCE SYSTEM	788	700	0	0
12411F SURVEILLANCE RADAR STATIONS/SITES	971	795	382	413
12412F DEW RADAR STATIONS	0	0	1,836	12
12423F BALLISTIC MSL EARLY WNG SYSTEM	2,394	2,980	2,150	1,742
12424F SPACETRACK	977	878	950	1,026
27411F OVERSEAS AIR WEAPON CONT SYS	1,000	1,235	2,295	2,277
27412F TACTICAL AIR CONTROL SYSTEM	3,320	988	4,279	4,382
27415F USAF COMMAND/CONTROL SYS	3,773	0	0	0
27417F TAC AIRBORNE COMD/CNTRL SYS	4,744	5,353	5,792	3,720
27423F ADV COMM SYS	2,883	5,289	6,305	6,450
27431F TACT AIR INTELL SYS ACTYS	806	2,192	1,093	1,180
28010F JT TACTICAL COMM PROG (TRI-TAC)	4,592	5,334	6,222	6,480
33126F LONG HAUL COMMUNICATIONS	1,127	440	330	360
33131F MINIMUM ESSENTIAL EMER COMM NETWORK	32	591	1,666	1,800
33152F WWMCCS INFO SYSTEM	0	0	2,444	6,550
33401F COMMUNICATIONS SECURITY	172	0	0	0
33601F AIR FORCE SAT COMM SYS	3,489	3,654	3,993	5,700
35114F TRAFFIC CNTRL/APPROACH/LANDING SYS	493	825	698	146
61102F DEFENSE RESEARCH SCIENCES	86	126	115	125
62101F GEOPHYSICS	80	20	60	60
62702F COMMAND/CONTROL/COMMUNICATIONS	2,920	3,030	3,120	3,025
62725F COMBAT IDENTIFICATION SYSTEM	282	0	0	0
63429F WARNING INFORMATION CORRELATION	1,532	0	0	0
63431F SPACE COMMUNICATIONS	433	1,966	4,104	4,600

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
MITRE Corporation (CONTINUED)

(\$ In Thousands)

<u>RDT&E APPROPRIATION (CONTINUED)</u>	<u>FY 1981 ACTUALS</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>	<u>FY 1984 ESTIMATES</u>
63703F CONUS OVER-THE-HORIZON RADAR	1,890	1,985	0	0
63707F WEATHER SYSTEMS	120	150	0	0
63726F FIBER OPTICS DEVELOPMENT	0	0	0	200
63727F ADVANCED COMMUNICATION TECHNOLOGY	0	204	200	144
63735F WWMCCS ARCHITECTURE	2,847	5,300	5,500	5,992
63742F COMBAT IDENTIFICATION TECHNOLOGY	0	700	1,000	5,800
63747F PAVE MOVER	1,930	0	0	0
63750F COUNTER/COUNTERMEASURES	300	537	636	936
63789F COMD/CNTRL/COMM ADV DEV	63	760	800	1,502
64616F PAVE MOVER ENGAGEMENT SYSTEM	0	2,800	3,300	6,567
64707F WEATHER SYSTEMS	542	1,300	1,346	1,057
64708F OTHER OPERATIONAL EQUIPMENT	99	108	175	189
64715F DOD PHYSICAL SECURITY EQ-EXTERIOR	722	488	675	1,155
64724F TAC C-3 COUNTERMEASURES	554	780	920	4,040
64725F COMBAT IDENTIFICATION SYSTEMS	0	401	1,854	5,302
64740F APPL FOR INFO PROCESSING TECH	808	1,341	1,432	1,800
64750F INTELLIGENCE EQUIPMENT	614	855	1,546	1,490
64754F JT TAC INFO DIST SYS (JTIDS)	2,681	4,160	4,051	4,010
64779F JT INTEROPERABILITY TAC COMD/CNTRL	1,441	1,400	1,211	1,917
64757F SYSTEMS PROTECTION	138	0	0	0
65806F ACQUISITION AND COMMAND SUPPORT	986	2,053	2,160	2,245
65807F TEST AND EVALUATION SPT	1,009	741	891	962
65808F ADV SYS ENGINEERING/PLAN	<u>2,220</u>	<u>2,211</u>	<u>2,429</u>	<u>2,700</u>
TOTAL AIR FORCE RDT&E	63,797	76,513	89,853	108,876

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FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
MITRE Corporation (CONTINUED)

(\$ In Thousands)

	<u>FY 1981</u>	<u>FY 1982</u>	<u>FY 1983</u>	<u>FY 1984</u>
<u>OTHER RDT&E SUPPORT</u>	<u>Actuals</u>	<u>Estimates</u>	<u>Estimates</u>	<u>Estimates</u>
35885G TACTICAL CRYPTOLOGICAL PROGRAM	1,403	2,351	1,969	2,574
33126G LONG-HAUL COMMUNICATIONS (DCS)	388	446	330	360
31011G CRYPTOLOGIC ACTIVITIES	85	90	0	0
31025G INTELLIGENCE DATA HANDLING SYS	581	600	0	0
TOTAL OTHER RDT&E SUPPORT				

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FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
MITRE Corporation (CONTINUED)

(\$ In Thousands)

		<u>FY 1981</u> <u>ACTUALS</u>	<u>FY 1982</u> <u>ESTIMATES</u>	<u>FY 1983</u> <u>ESTIMATES</u>	<u>FY 1984</u> <u>ESTIMATES</u>
<u>OPERATIONS AND MAINTENANCE</u> <u>APPROPRIATION</u>					
12311F	NORAD COC	3,101	4,569	3,730	4,164
27411F	OVERSEAS AIR WEAPON CONT SYS	1,018	3,315	4,005	3,899
27415F	USAFE COMMAND/CONTROL SYS	2,459	0	0	0
31011F	CRYPTOLOGIC ACTIVITIES	841	0	0	0
31328F	STRATEGIC AIR CMD GDIP ACTIVITIES	0	0	556	600
33151F	WWMCCS ADP	0	0	1,029	1,080
35895F	BASE COMMUNICATIONS	0	200	200	300
78019F	UTAH TESTING & TRAINING RANGE	284	268	483	522
87791D	TRIMIS PROGRAM OFFICE	391	480	541	500
TOTAL OPERATIONS AND MAINTENANCE APPROPRIATION					
<u>AIRCRAFT PROCUREMENT APPROPRIATION</u>					
27423F	ADV COMM SYS	736	0	0	0
<u>OTHER PROCUREMENT APPROPRIATION</u>					
12325F	JOINT SURVEILLANCE SYSTEM	0	0	757	818
27423F	ADV COMM SYS	0	775	599	388
27431F	TAC AIR INTELL SYS ACTYS	609	200	778	240
28010F	JT TACTICAL COMM PROG (TRI-TAC)	1,000	1,164	2,722	2,880
33110F	DEF SATELLITE COMM SYS	453	574	1,129	1,158
33126F	LONG-HAUL COMMUNICATIONS (DCS)	1,649	1,960	2,318	2,438
33601F	AIR FORCE SAT COMM SYS	725	630	840	6,537
33605F	SATELLITE COMMUNICATIONS TERMINALS	1,468	2,000	2,296	2,486
TOTAL OTHER PROCUREMENT APPROPRIATION					
		5,904	7,303	11,439	16,945

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FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
MITRE Corporation (CONTINUED)

MITRE. MITRE Corporation provides scientific and engineering assistance to the Air Force and other DOD agencies primarily in the areas of command and control, communications, sensor and support systems. The Corporation performs systems engineering/integration and support of development planning activities. Major Air Force programs being supported by MITRE include the Post-Attack Command and Control System, Tactical Airborne Communications Control System, Joint Tactical Communications Program (TRI-TAC), and various strategic and tactical command, control and communications systems. The other DOD agencies included such organizations as the Joint Deployment Agency, DCA, DARPA, Army, Navy, Assistant Secretary of Defense (Intelligence), and the Assistant Secretary of Defense (Test and Evaluation).

FEDERAL CONTRACT RESEARCH CENTERS
Summary by Program Element
Project AIR FORCE

(\$ In Thousands)

<u>RD&E APPROPRIATION</u>	<u>FY 1981 ACTUAL</u>	<u>FY 1982 ESTIMATES</u>	<u>FY 1983 ESTIMATES</u>	<u>FY 1984 ESTIMATES</u>
65101F BASIC PROGRAM	<u>12,902</u>	<u>13,748</u>	<u>16,231</u>	<u>16,954</u>
TOTAL PROJECT AIR FORCE	12,902	13,748	16,231	16,954

PROJECT AIR FORCE. This project is devoted to assisting Air Force decision making by furnishing information and objective findings derived from independent research and analysis of aerospace problems. The program objective is to recommend preferred methods, techniques and instrumentalities for the development and employment of aerospace power. The project is a Federal Contract Research Center (FCRC), operated by The Rand Corporation.

**MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED
FACILITIES FUNDED BY RDT&E**

Department/Agency: Air Force

Date: January 1982

PART I. UTILIZATION OF SECTION 2353, TITLE 10 AUTHORITY

Specialized R&D facilities determined to be necessary for the performance of a contract for a Military Department for research and development, may be constructed by or furnished to the contractor and funded from appropriations available for research, development, test and evaluation. The Congress enacted this legislation now 10 USC 2353, in 1956. This policy is executed through DoD Directive 4275.5. Under this policy, the Secretaries of the Military Departments or their designees, and the Directors of Defense Agencies may approve facilities projects up to \$3,000,000; the Under Secretary of Defense Research and Engineering approves projects exceeding \$3,000,000. The Congress is notified in advance of starting any project involving construction, regardless of the dollar amount. The table below provides a summary listing of all such projects accomplished in FY 81 and planned in FY 82 and FY 83:

Facility/Equipment	RDT&E Project Number	Contractor	Location	Total Obligational Authority (Thousands of Dollars)			
				1981	1982	1983	1984

SECTION I

Projects Accomplished or Underway

Millstone Radar Site <u>2/</u>	63428F	Lincoln Laboratory	Westford, MA	15.0
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SECTION II

Projects Planned or Projected

Building 1302B - Addn to Elec. Research Lab <u>2/</u>	63431F	MIT - Lincoln Lab	Hanscom AFB MA	780.0
Building 1312L - Addn to Elec. Research Lab <u>2/</u>	Various	MIT - Lincoln Lab	Hanscom AFB, MA	1,280.0

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Exhibit RD-4

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PART 1. (CONTINUED)

Facility/Equipment	RDT&E Project Number	Contractor	Location	Total Obligational Authority (Thousands of Dollars)			
				1981	1982	1983	1984
CONUS OTH - B Radar Facilities <u>2/</u>	12417F	General Electric	Bingham AFS, ME Columbia Falls AFS, ME			25,000.0	
TOTAL PART I			Bangor IAP, ME	15.0		27,060.0	

1/ Initial Listing

2/ Listed in FY 82 Submittal

Exhibit RD-4

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PART 2. UTILIZATION OF RDT&E APPROPRIATION FOR FACILITIES AT GOVERNMENT-OWNED/GOVERNMENT-OPERATED INSTALLATIONS

Chapter 251 (which was approved by the GAO as DoD Instruction 7220.5) provides that RDT&E appropriations may finance the development, design, purchase and installation (including directly related foundations, shielding, environmental control weather protection, structural adjustments, utilities and access) of equipment or instrumentation required for research, development, test and evaluation activities. The table below provides a summary listing of all such projects for the installation of equipment, where the cost of installation is \$100,000 or more, accomplished in FY 81 and planned in FY 82 and FY 83.

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)			
			1981	1982	1983	1984
<u>SECTION I</u> Projects Accomplished or Underway						
Modernize Component Research Air Facility <u>2/</u>	62203F	Wright-Patterson AFB OH	750.0	585.0	1,800.0	1,425.0
Temporary Test Site for PAVE MOVER <u>2/</u>	63747F	Holloman AFB, NM	632.0	36.0		
Test Capabilities for AMRAAM Program <u>2/</u>	63370F	Holloman AFB, NM	155.5			
Machinery Condition Monitoring, <u>2/</u>	65807F	Arnold AFS, TN	234.0	312.0	120.0	
Tunnel A/B/C Controls <u>2/</u>	65807F	Arnold AFS, TN	42.0	45.0		
4T Flexible Nozzle <u>2/</u>	65807F	Arnold AFS, TN	72.0	217.0	264.0	
Command, Control and Comm Facility (SACDIN) <u>2/</u>	11316F	Offutt AFB, NE	90.0			
Temporary Clean Room <u>2/</u>	35160F	Vandenberg AFB, CA	600.0			
Install RDT&E GPS Equipment <u>2/</u>	64778F	Vandenberg AFB, CA	490.0			
Optics RDT&E Facility <u>1/</u>	34111F	Florida	265.0			
		57				Exhibit RD

Exhibit RD-4

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PART 2. (CONTINUED)

SECTION II
Projects Planned or Projected

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)			
			1981	1982	1983	1984
Equipment Installation Particle Beam (RADLAC) 1/	62601F	Kirtland AFB, NM		300.0		
Install Chem/Oxygen - Iodine Laser Device 2/	63605F	Kirtland AFB, NM		300.0		
Install Pulsed Chemical Laser Test Device 2/	62601F	Kirtland AFB, NM		300.0		
Mod to Install Front End Processor 2/	62601F	Kirtland AFB, NM		150.0		
Mod to Install 2d Facs 2/	62601F	Kirtland AFB, NM		200.0		
Temporary Facility for Sandia Optical Range 2/	63605F	Kirtland AFB, NM		3,355.0		
Temp Bldg/EMP Testing 2/	64747F	Kirtland AFB, NM		287.0		
Relocate Avionics Lab Equipment 2/	27130F	Edwards AFB, CA	84.2			
Alter Integrated Maint. Facility (IMF) 2/	64406F	Edwards AFB, CA		2,600.0		
Install Film Processing Equipment 2/	65807F	Edwards AFB, CA		150.0		
Turbostructure Spin Test Facility 2/	62203F	Wright-Patterson AFB, OH			310.0	300.0

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PART 2. (CONTINUED)

SECTION II
(CONTINUED)

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)			
			1981	1982	1983	1984
Compressor Research Facility Dual Flow System <u>1</u> /	62203F	Wright-Patterson AFB, OH			750.0	750.0
Weapons Effect Test Facility <u>1</u> /	64708F	Eglin AFB, FL	1,800.0	2,220.0		
Temporary Construction to Support MVS Testing <u>1</u> /	65807F	Arnold AFS, TN	400.0			
Rocket Propellant Research Process System <u>2</u> /	62302F	Edwards AFB, CA		835.0		
Data Calibration Center <u>2</u> /	62302F	Edwards AFB, CA		400.0		
Alter Physical Science Laboratory <u>2</u> /	62302F	Edwards AFB, CA			850.0	
Install SPADOC-4 Equip <u>1</u> /	12311F	Colorado Springs, CO			200.0	
Install Vitiation Heater, Aeropropulsion Test Unit <u>1</u> /	65807F	Arnold AFS, TN	289.0	477.0		
Alter Titan 395C Launch Facility for HPTEM <u>3</u> /	63424F	Vandenberg AFB, CA		750.0		

PART 2. (CONTINUED)

SECTION II
(CONTINUED)

Facility/Equipment	RDT&E Project Number	Location	Total Obligational Authority (Thousands of Dollars)			
			1981	1982	1983	1984
Equip Modification, Add Acoustic Suppression, D Bay Bldg 71A 1/ Canister Assembly Launch	62203F	Wright-Patterson AFB, OH			200.0	
Test Program 2/ TOTAL PART II	64312	Southwestern CONUS	6,330.0 12,233.7		13,519.0	200.0 2,675.0
				4,494.0		

1/ Initial Listing

2/ Listed in FY 82 Submittal

3/ Project previously submitted in FY 82 under the title of "Pad 1, ABRES A Site".

PART 3. UTILIZATION OF RDT&E APPROPRIATION FOR MINOR CONSTRUCTION

For in-house installations, construction projects in support of R&D for \$100,000 or less are funded from RDT&E appropriations. Such expenditures are authorized by 10 USC 2674 and the applicable provisions of the current DoD Appropriation Act. Under this procedure, project approval at this level is authorized by the Major Command concerned, or delegated to R&D installation commanders as appropriate. The table below provides a summary total of such minor construction accomplished in FY 81, and the estimated amounts planned for FY 82 and FY 83. All minor construction must result in a complete and usable facility. In no event are two or more minor construction projects or minor and major construction projects to be contrived to form a usable facility:

SUMMARY OF MINOR CONSTRUCTION FUNDED BY RDT&E, AIR FORCE

	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>
TOTAL PART 3	7,428.0	10,751.0	9,578.8	6,493.9

RECAP OF FUNDING

SUBTOTAL PART 1	15.0		27,060.0	
SUBTOTAL PART 2	12,233.7	13,519.0	4,494.0	2,675.0
SUBTOTAL PART 3	7,428.0	10,751.0	9,578.8	6,493.9
GRAND TOTAL	19,676.7	24,270.0	41,132.8	9,168.9

1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1982	
3 INSTALLATION AND LOCATION LINCOLN LABORATORY HANSCOM AFB, MASSACHUSETTS			4 PROJECT TITLE IMPROVEMENT OF LIFE SAFETY WARNING AND FIRE DETECTION SYSTEMS		
5 PROGRAM ELEMENT VARIOUS	6 CATEGORY CODE VARIOUS	7 PROJECT NUMBER 649L	8 PROJECT COST (\$000) 4,410		
9 COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
Sprinkler System, Basements	LS			285	
Detection and Alarm Systems	LS			450	
Emergency Electrical and Lighting	LS			750	
Compartmentalization (Area Isolation)	LS			860	
Halon Systems, Portable & Extinguishers	LS			510	
Replace Penthouses.	LS			300	
Sprinkler System - Other Areas of Lab Bldgs	LS			845	
Subtotal.				4,000	
Contingency (5%).				200	
Total Funded Cost				4,200	
Supervision, Inspection, Overhead (5%).				210	
Total Project Cost				4,410	
10 DESCRIPTION OF PROPOSED INSTALLATION : Sprinkler Systems (Basements), Detection and Alarm Systems, Emergency Electrical and Lighting, Compartmentalization (Area Isolation), Halon Systems, Portable & Extinguishers, Replace Penthouses, Sprinkler System - other areas of Lab Bldgs.					
11. PROJECT: Install fire detection, alarm and suppression systems, emergency electrical system and corridor fire stops in Lincoln Laboratory buildings. Replace wooden penthouses with permanent type structures. Install sprinkler systems, install halon systems.					
REQUIREMENT: Adequate fire detection, alarm and suppression systems and emergency lighting systems are required by the National Fire Codes, AFM 88-15 and the Air Force Occupational Safety and Health Standards. Buildings of wood construction are not acceptable. The basic requirement is to protect both human life and property and to restrict fire and smoke propagation.					
CURRENT SITUATION: The buildings provided to Lincoln Laboratory by the Air Force do not have adequate fire detection, alarm or suppression systems to protect the occupants and government property. The present systems are minimal and in some instances nonexistent.					
IMPACT IF NOT PROVIDED: The potential for loss of life and equipment would remain unnecessarily high.					

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1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1982	
3 INSTALLATION AND LOCATION FLORIDA			4. PROJECT TITLE OPTICS RDT&E FACILITY		
5 PROGRAM ELEMENT 34111F	6 CATEGORY CODE 312-477	7 PROJECT NUMBER AFR 80-22	8 PROJECT COST (\$000) 265		
9 COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
OPTICS RDT&E FACILITY	SF	1,440	184.03	265	
Slab/Foundation	LS			(21)	
Structural	LS			(42)	
Electrical	LS			(75)	
HVAC	LS			(86)	
Fire Protection	LS			(17)	
Pre-Fab Building	EA	1	24,000	(24)	
Unfunded: Design				27	
Excluded Cost (NON-ADD)	LS			2,300	
Optics Equipment	LS			(2,300)	
<p>10 DESCRIPTION OF PROPOSED INSTALLATION Provide a 24ft X 60ft temporary building to accept new and existing optics equipment; includes a 300 psi reinforced concrete slab/foundation 22 inches above ground level, erection of the building, electrical hookup to existing transformer, and all work necessary to provide a complete and usable facility. Air Conditioning - 45 tons.</p> <p>PROJECT: Provides a temporary, environmentally controlled RDT&E facility.</p> <p>REQUIREMENT: An optics facility to provide 1/10 psi positive pressure and with controlled temperature and humidity levels.</p> <p>CURRENT SITUATION: One temporary optics facility exists today. It does not have adequate space to meet current requirements.</p> <p>IMPACT IF NOT PROVIDED: The mission this project supports cannot be accomplished until this facility is completed. Additionally, optics equipment ordered on 25 April 1981 which requires environmentally controlled storage space could not be put to use.</p>					

1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1982	
3 INSTALLATION AND LOCATION KIRTLAND AFB, NEW MEXICO			4 PROJECT TITLE TEMPORARY CONSTRUCTION - PARTICLE BEAM (RADLAC II)		
5 PROGRAM ELEMENT 62601F	6 CATEGORY CODE 310-924	7 PROJECT NUMBER KLD 184-2 (R1)	8. PROJECT COST (\$000) 300		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
TEMPORARY CONSTRUCTION					
PARTICLE BEAM (RADLAC II)					300
INSTALL ADDITIONAL OIL TANKS		EA	2	25	(50)
INSTALL OVERHEAD CRANE EXTENSION		LS			(38)
INSTALL ADDITIONAL SECONDARY ELECTRIC		LS			(30)
DRILL 36" DIAGONAL HOLES		EA	3	6.7	(20)
CONSTRUCT TEMPORARY EQUIPMENT SHELTER		SF	1,620	.1	(162)
DESIGN COST (NON ADD)					(18)
ACQUISITION COST OF EQUIPMENT (NON ADD)					(3M to 5M)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>Remodel Building 66001 to accommodate the RADLAC II particle beam generator. Temporary construction consists of installing two new oil storage tanks, extending an existing overhead crane, adding additional secondary electrical power, cutting 3-36" diagonal holes in an existing 12" thick concrete shielding wall, and constructing an 18' x 90' temporary shelter.</p> <p><u>PROJECT:</u> Alterations to existing building to house RADLAC II.</p> <p><u>REQUIREMENT:</u> Alterations are required for the installation of a new pulse power electron accelerator which is another phase in the DOD Integrated Particle Beam Program. RADLAC II is required to provide the higher particle beam energies currently unavailable in this program yet necessary to keep abreast in the particle beam technology race. The oil tanks that house the high voltage generators for the accelerator must be placed outside the primary building due to space limitations. The temporary shelter will house these oil tanks and holes will be placed in the common wall to allow for the necessary connections. Extension of the overhead crane is required to facilitate transfer of heavy equipment during the equipment configuration phase.</p> <p><u>CURRENT SITUATION:</u> The RADLAC I facility currently used (Bldg 66001) cannot provide the power necessary for state-of-the-art particle beam experiments.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Failure to approve this temporary construction will delay the DOD Integrated Particle Beam Program.</p>					

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THIS FORM MAY BE USED INTERNALLY

PAGE NO

1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1982	
3 INSTALLATION AND LOCATION WIRGHT-PATTERSON AIR FORCE BASE, OHIO			4 PROJECT TITLE INSTALLATION COMPRESSOR RESEARCH FACILITY DUAL FLOW SYSTEM, BLDG20A		
5 PROGRAM ELEMENT 62203F	6 CATEGORY CODE 318-612	7 PROJECT NUMBER EQ 81-9140	8 PROJECT COST (\$000) 1,500.0		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
EQUIPMENT INSTALLATION COMPRESSOR RESEARCH FACILITY DUAL FLOW SYSTEM, BLDG 20A					1,500.0
RDT&E Equipment (NON-ADD)					(4,000.0)
Total Equip & Installation Costs (NON-ADD) . .					(5,500.0)
Engineering Analysis & Design (NON-ADD) . . .					(380.0)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>All work necessary to provide a dual flow path facility to test modern dual shaft turbofan engines.</p> <p>PROJECT: Modify existing Compressor Research Facility (CRF) to split existing inlet air flow path into two independently controllable flow paths.</p> <p>REQUIREMENT: Modern dual shaft turbofan engines (all current turbofan engines are either dual or triple spool engines) incorporate fan designs which have significantly different air flows at the hub (air that flows into the engine core - the high pressure compressor) and the outer spans (low pressure air that is bypassed around the core). The ability to independently throttle and measure these two flows is essential to adequately predict and evaluate modern propulsion system performance and stability. All foreseeable fighters, bomber and transport engines will require this test capability.</p> <p>CURRENT SITUATION: The CRF presently has a single flow capability.</p> <p>IMPACT IF NOT PROVIDED: Modern turbofan engines will not be fully analyzed in the existing facility.</p>					

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1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1982	
3 INSTALLATION AND LOCATION EGLIN AFB FL			4 PROJECT TITLE PROVIDE WEAPONS EFFECT TEST FACILITY		
5 PROGRAM ELEMENT 64708F	6 CATEGORY CODE 111-111	7 PROJECT NUMBER EGL 81-0341 (R1)	8 PROJECT COST (\$000) 4,020.0		
9 COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
Provide Weapons Test Facility	LS			1,714.3	
Phase I: (FY 81)	SY	30,000	47.58	(1,427.3)	
PCC Pavement	LS			(287.0)	
Site Preparation, Subgrade, Base					
Phase II: (FY 82)	LS			2,114.3	
PCC Pavement	SY	30,000	51.19	(1,535.8)	
Asphalt Overlay	SY	30,000	9.00	(270.0)	
Site Preparation, Subgrade, Base	LS			(308.5)	
Subtotal				3,828.6	
Contingencies (5%)				191.4	
Total				4,020.0	
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>Phase I - Clearing and grubbing, preparation of subgrade, 12" crushed aggregate base course, 12" PCC pavement 1500' x 180', sealing of joints in pavement, and establishment of turf.</p> <p>Phase II - Provisions for an identical 1500' x 180' PCC pavement 12" thick with a 4" asphalt overlay.</p> <p><u>PROJECT:</u> Project provides for a special test facility, in accordance with AFR 80-22, consisting of two each 1500' 180' simulated runway test sections at test area C-72 on Eglin AFB.</p> <p><u>REQUIREMENT:</u> HQ USAF and Tactical Air Command have stated the need for additional Weapons Effect Tests (WET) data on MK-82/84 series bombs against concrete runway surfaces. The data base in the Joint Munitions Effectiveness Manual (JMEM) needed to be expanded and a test plan was devised to collect the needed data. Eglin was directed to provide representative pavements for use as realistic targets in response to TAC specified requirements. These runway sections, designed to Soviet/Warsaw pact specifications, will be destroyed during the testing process.</p> <p><u>CURRENT SITUATION:</u> No test facilities exist to test these weapons on Soviet/Warsaw Pact runway sections.</p> <p><u>IMPACT IF NOT PROVIDED:</u> Scheduled test and test results would be delayed one year.</p>					

1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1982	
3 INSTALLATION AND LOCATION ARNOLD AFS, TENNESSEE			4 PROJECT TITLE TEMPORARY CONSTRUCTION TO SUPPORT MVS TESTING		
5 PROGRAM ELEMENT 65807F	6 CATEGORY CODE 310-926	7 PROJECT NUMBER 815015	8 PROJECT COST (\$000) 400		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
TEMPORARY CONSTRUCTION TO SUPPORT MVS TESTING					400
Cryogenic Utilities		LS			(5)
Equipment Site Preparation		LS			(395)
Equipment (Non Add)		LS			(2,170)
Construction/Alter Chamber (Non Add)		LS			(50)
10 DESCRIPTION OF PROPOSED INSTALLATION					
<p>Fabricate and purchase equipment items and install in an existing test unit (7V chamber)</p> <p><u>PROJECT:</u> Provides for fabrication, purchase and installation of test-peculiar equipment in an existing test facility at AEDC to support the development of the miniature vehicle system (MVS) sensor. The test duration in the 7V chamber is approximately one year. After test completion, all equipment will be removed and the facility returned to its original test configuration. Fabrication, purchase, and installation costs are being funded by Space Division (SD/YNAV).</p> <p><u>EQUIPEMENT:</u> The AEDC program is to obtain timing fidelity measurements and infrared (IR) detector calibration for the MVS sensor. The extensive build-up is required to simulate the environment and operational mode of the MVS sensor.</p> <p><u>CURRENT SITUATION:</u> The 7V chamber at AEDC is an IR calibration facility. It is capable of simulating a deep space environment. To accomplish the objectives of the MVS program, special equipment to spin and support the sensor at 20 rev/sec test condition must be developed. Because of the MVS mission, the optical pointing accuracy of the facility must be improved. The equipment needed to accomplish the test objectives of MVS sensor testing is not applicable to other types of sensor testing. Therefore, this equipment is needed to specifically meet the MVS program sensor test requirements.</p> <p><u>IMPACT IF NOT PROVIDED:</u> This project is necessary to maintain the development test schedule. Delay would result in test date slippage and would adversely impact planned flight tests.</p>					

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PREVIOUS EDITIONS MAY BE USED INTERNALLY

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1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1982	
3 INSTALLATION AND LOCATION Federal Building Colorado Springs, Colorado			4 PROJECT TITLE Equipment Installation Install SPADOC-4 Equipment		
5 PROGRAM ELEMENT 12311	6 CATEGORY CODE 141-000	7 PROJECT NUMBER ES-82-006	8 PROJECT COST (\$000) 200		

9 COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Equipment Installation Install SPADOC-4 Equipment at Off-Site Test Fac (OSTF)	LS			200
Acquisition Cost of R&D Equipment	(Non Add)			(81,100)
				(81,300)

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10 DESCRIPTION OF PROPOSED INSTALLATION Install equipment in an area at the OSTF located in the Federal Bldg, Colorado Springs, Colorado.

PROJECT: The project will provide an area to support the SPACE DEFENSE OPERATIONS CENTER (SPADOC) Phase 4 equipment.

REQUIREMENT: The SPADOC is a phase 4 upgrade system. The OSTF is required to allow SPADOC-4 to be tested in a non-operational environment without disrupting the operation of SPADOC phases 1, 2 and 3, which will already be installed and operating at Cheyenne Mountain. The OSTF will also be used to train crews to operate the SPADOC-4.

IMPACT IF NOT PROVIDED: SPADOC-4 testing and training of crews will have to be performed at Cheyenne Mountain, jeopardizing the security of the system, and preventing continuous operation of the first three phases of SPADOC which will be operational at the time SPADOC-4 will be installed.

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1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1982	
3 INSTALLATION AND LOCATION ARNOLD AIR FORCE STATION, TENNESSEE			4 PROJECT TITLE EQUIPMENT INSTALLATION: INSTALL VITIATION HEATER		
5 PROGRAM ELEMENT 65807	6 CATEGORY CODE 390-614	7 PROJECT NUMBER ARN 78-0024 (R1)	8 PROJECT COST (\$000) 993.0		
9 COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
Equipment Installation:				993.0	
Materials	LS			(303.0)	
Labor	LS			(609.0)	
Total Equipment Installation				993.0	
RDT&E Equipment - Vitiation Heater		(Non-Add		(1,312.0)	
Equipment Repair		(Non-Add		(335.0)	
Facility Repair		(Non-Add		(220.0)	
10 DESCRIPTION OF PROPOSED INSTALLATION R&D (AFR 80-22) Equipment Installation: Procurement and installation of a vitiation heater in the existing Aerodynamic and Propulsion Test Unit (APTU), including interface with all existing fuel and support systems. The vitiation heater will remain a removable item.					
PROJECT: Addition of a vitiation heater to an existing test facility. Provides the capability required for development testing of advanced ramjet and solid rocket propulsion systems.					
REQUIREMENT: For the foreseeable future, strategic and tactical missile systems employing a combination of solid rocket and ramjet propulsion systems will require extensive development and verification testing. The test requirements are marked by both high temperature and high pressure. Development programs include the Advanced Strategic Air Launched Missile (ASALM), the Ducted Rocket, Liquid Fueled Ramjet, and Solid Fueled Ramjet.					
CURRENT SITUATION: APTU is the only government facility potentially capable of meeting the desired test requirements. Presently, requirements cannot be met due to refractory deficiencies in the regenerative heater. Due to continuing and unresolved problems with known refractory materials, repair of this existing heater is not considered the most reliable method of restoring APTU capability. Instead, a vitiation heater is proposed due to it's proven reliability, lower operating and maintenance costs.					
IMPACT IF NOT PROVIDED: APTU, in it's present condition, cannot reliably support already heavily scheduled ramjet and ram rocket propulsion test programs.					

1 COMPONENT Air Force		FY 1983 RDT&E FACILITIES PROJECT DATA		2 DATE January 1982	
3 INSTALLATION AND LOCATION WRIGHT-PATTERSON AIR FORCE BASE, OHIO			4 PROJECT TITLE EQUIP MODIFICATION ADD ACOUSTIC SUPPRESSION, D BAY, BLDG 71A		
5 PROGRAM ELEMENT 62203F	6 CATEGORY CODE 318-612	7 PROJECT NUMBER EQ 81-9139	8 PROJECT COST (\$000) 200.0		
9 COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
EQUIPMENT MODIFICATION ADD ACOUSTICAL SUPPRESSION, D BAY, BLDG 71A .					200.0
RDT&E Equipment (NON-ADD)					(50.0)
Total Equip & Installation Costs (NON-ADD) . .					(250.0)
Engineering Analysis & Design (NON-ADD) . . .					(25.0)
Minor Construction (NON-ADD)					(90.0)
10 DESCRIPTION OF PROPOSED INSTALLATION					
All work necessary to provide noise attenuation. Work includes installation of sound absorbing material, and rebuilding of engine exhaust augmentor.					
SPECIFIC PURPOSE: To provide noise attenuation in sea level engine test facility, D Bay, Bldg 71A.					
PROJECT: Modify existing test cell and engine exhaust augmentor by installation of sound absorbing material and rebuilding of augmentor.					
REQUIREMENT: To modify existing facility so that experimental engines and engines in the Air Force inventory can be tested at full power without damage to the engine or facility.					
CURRENT SITUATION: Test cell is fatiguing due to noise generated by the aircraft engine undergoing test, thereby reducing the maximum capability of the test cell.					
IMPACT IF NOT PROVIDED: R&D analysis and evaluation of full scale modern jet engines will be greatly limited due to the deteriorating test cell condition.					

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DEPARTMENT OF AIR FORCE
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
FLIGHT SIMULATOR PROGRAMS
(\$ in Thousands)

<u>PROGRAM ELEMENT/PROJECT</u>	<u>FY 1981 ACTUAL</u>	<u>FY 1982 ESTIMATE</u>	<u>FY 1983 ESTIMATE</u>	<u>FY 1984 ESTIMATE</u>	<u>DESCRIPTIVE SUMMARY REFERENCE</u>
11113F B-52 SQUADRONS (PARTIAL PE) 11113F/2632 (B-52 OAS/CMI WEAPON SYSTEM TRAINER MODIFICATION)	7,200 (7,200)	2,200 (2,200)	0 (0)	0 (0)	TBD
35887F SIMULATOR VALIDATION (SIMVAL) 35887F/ (SIMULATOR VALIDATION)	0 (0)	0 (0)	2,626 (2,626)	1,820 (1,820)	TBD
41119F C-5 AIRLIFT SQUADRONS (PARTIAL PE) 41119F/2854 (C-5/C-141 AERIAL REFUELING PART TASK TRAINER)	0 (0)	0 (0)	1,282 (1,282)	1,948 (1,948)	TBD
41118F C-141 AIRLIFT SQUADRONS (PARTIAL PE) 41118F/ (C-5/C-141 AERIAL REFUELING PART TASK TRAINER)	0 (0)	0 (0)	1,282 (1,282)	1,948 (1,948)	TBD
62205F TRAINING AND SIMULATION TECHNOLOGY (PARTIAL PE) 62205F/1123 (FLYING TRAINING DEVELOPMENT)	5,378 (659)	5,957 (927)	8,624 (1,400)	8,005 (1,400)	TBD
62205F/1192 (ADVANCED SIMULATOR FOR PILOT TRAINING)	(4,694)	(4,697)	(6,024)	(5,405)	
62205F/6114 (SIMULATION TECHNIQUES FOR AIR FORCE TRAINING)	(25)	(333)	(1,200)	(1,200)	
63227F ADVANCED SIMULATOR DEVELOPMENT 63227F/2363 (ADVANCED VISUAL TECHNOLOGY SYSTEM)	3,163 (3,163)	2,192 (2,192)	10,739 (8,889)	6,941 (6,841)	TBD
63227F/2743 (ADVANCED SIMULATOR CONCEPTS)	(0)	(0)	(1,850)	(100)	
63751F INNOVATIONS IN EDUCATION AND TRAINING (PARTIAL PE) 63751F/2359 (PILOT PERFORMANCE MEASUREMENT)	1,080 (300)	1,100 (400)	1,000 (500)	1,400 (900)	TBD
63751F/2361 (MAINTENANCE TRAINING SIMULATION)	(780)	(700)	(500)	(500)	
64220F EF-111A (PARTIAL PE) 64220F/2687 OPERATIONAL FLIGHT TRAINER	100 (100)	6,100 (6,100)	24,600 (24,600)	19,700 (19,700)	TBD

DO NOT TYPE BEYOND THE LU LINE TOTAL

64227F	FLIGHT SIMULATOR DEVELOPMENT	5,549	11,258	5,439	8,456	TBD
64227F/2269	(ELECTRO-OPTICAL VIEWING SYSTEM)	(195)	(0)	(0)	(0)	
64227F/2325	(SIMULATOR DEVELOPMENT ACTIVITIES)	(1,353)	(1,458)	(2,000)	(4,100)	
64227F/2360	(TACTICAL COMBAT TRAINER)	(4,001)	(0)	(0)	(0)	
64227F/2769	(SIMULATOR UPDATE DEVELOPMENT)	(0)	(9,800)	(3,439)	(3,356)	
64227F/2851	(STANDARD DMA DATA BASE TRANSFORMATION)	(0)	(0)	(0)	(1,000)	
TOTAL		22,470	28,807	55,592	50,218	

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